IN THE UNITED STATES BANKRUPTCY COURT
FOR THE WESTERN DISTRICT OF NORTH CAROLINA
Charlotte Division

IN RE: GARLOCK SEALING TECHNOLOGIES LLC, et al., Debtors.[1]	Case No. 10-BK-31607 Chapter 11 Jointly Administered

DEBTORS' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

Debtors respectfully submit the following proposed findings of fact and conclusions of law in the estimation proceeding pursuant to the Court's Order for Estimation of Mesothelioma Claims (Docket No. 2102).

Jurisdiction

1. This Court has jurisdiction over this matter pursuant to 28 U.S.C. §§ 157 and 1334. This estimation for purpose of determining the feasibility of a plan is a core proceeding pursuant to 28 U.S.C. § 157. *A.H. Robins Co. v. Piccinin*, 788 F.2d 994, 1012-14 (4th Cir. 1986).

Findings of Fact

2. Garlock manufactured asbestos-containing gaskets and packing and was sued by plaintiffs alleging personal injuries caused by those products (including mesothelioma) for more than thirty years.

I. General Findings on the Merits Case Against Garlock

1. Claims against Garlock arise from its sale of asbestos gaskets and packing.

[1] The debtors in these jointly administered cases are Garlock Sealing Technologies LLC; Garrison Litigation Management Group, Ltd.; and The Anchor Packing Company (hereinafter "Garlock" or "Debtors").

2. Potential asbestos exposure from typical use of gaskets and packing is below all historical and current safety limits.[2]

3. The historical view of leading health advocates, such as Dr. Irving Selikoff, is that gaskets and packing pose no health risk.[3]

4. Asbestos gaskets and packing may still be lawfully sold in the United States.[4]

5. Virtually all claimants had substantial exposure to asbestos-containing pipecovering and thermal insulation sufficient to cause their mesothelioma.[5]

6. A well-documented, significant association exists between regular work with or around asbestos pipecovering and thermal insulation products and death from mesothelioma. For insulators, the death rate from mesothelioma is approximately 10%.[6]

7. Asbestos insulations and pipecoverings were friable products that produced high exposures capable of defeating the body's defenses.[7]

8. Claims against Garlock by pipefitters typically involve an occupational history of exposure to asbestos pipecovering insulation that is an important factor in causation.[8]

9. Additionally, fiber burden studies provide a reliable method of determining past exposure to amphiboles. Those studies have demonstrated that in virtually all occupational categories where people have been making claims of mesothelioma, the overwhelming majority of cases have evidence of significant amosite exposure.[9]

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[2] Tr. 520:1-521:1 (Liukonen); Tr. 854:7-856:15 (Henshaw); Henshaw Demonstrative Slides at 33 (GST-16003).
[3] Tr. 1008:16-22 (Weill).
[4] Tr. 787:10-17 (Boelter).
[5] Tr. 1009:18-1012:25 (Weill).
[6] Tr. 2001:11-21 (Brodkin).
[7] Tr. 968:13-972:15 (Weill).
[8] Tr. 2002:22-2003:14, 2008:9-2009:25 (Brodkin).
[9] Tr. 430:4-431:24 (Sporn); Tr. 2011:21-2012:19 (Brodkin).

10. Asbestos pipecovering and insulating products cannot be excluded as a cause in typical claims that are likely to arise against Garlock.[10]

11. Even under pro-claimant assumptions,[11] any potential asbestos exposure from Garlock products would be trivial in comparison to total exposure from asbestos pipecovering and thermal insulation products.[12]

12. Pipecovering and thermal insulation products to which claimants were exposed often were manufactured from commercial amphibole forms of asbestos.[13] The majority of asbestos fibers used in pipecoverings were the amphibole mineral amosite.[14]

13. The commercial mineral used to make the asbestos gaskets and packing that will form the basis for virtually all claims against Garlock is chrysotile.[15] Only specialty products intended for specific applications were made from crocidolite.[16]

14. Chrysotile differs in chemical formula, crystal structure, and electrical charge from the amphibole fibers of the minerals amosite, crocidolite, and tremolite.[17] The curly chrysotile fibers break down in the body and are removed rapidly, whereas the spear-like amphiboles persist for years, a concept known as biopersistence.[18]

15. The consensus of the medical community is that chrysotile-induced mesothelioma only occurs with very high exposures" such as occur in "mining situations."[19] Even in these

[10] Tr. 2009:8-25 (Brodkin).
[11] Tr. 1010:2-1012:25 (Weill).
[12] Tr. 964:16-19 (Weill).
[13] Tr. 1679:25-1680:6, 1717:8-14 (Shoemaker).
[14] Tr. 972:16-976:5 (Henshaw).
[15] Tr. 945:23-25 (Henshaw).
[16] Tr. 889:20-22 (Henshaw); Tr. 1510:3-6.(Longo).
[17] Tr. 416:11-419:15 (Sporn).
[18] Tr. 419:16-421:24, 423:21-424:7 (Sporn); Tr. 1886:17-20 (Brody).
[19] Tr. 1901:3-1902:5 (Brody) (admitting that in his deposition he agreed that was the consensus). (Debtors' Motion to Exclude or Strike Committee Medical Expert Witness Opinions filed 7/3/13 [Hereafter "Motion"], Appendix C, Brody Dep. at 149:12-150:4; Motion, Appendix D, Sporn Rebuttal References, Churg (2005)). The consensus that chrysotile-induced mesothelioma only occurs with very high exposure was published in a textbook authored by

settings, studies of persons exposed in mines without amphibole contaminants did not demonstrate increased mesothelioma risk.[20]

16. Consistent with the consensus of the scientific community low-dose chrysotile products like Garlock's gaskets and packing are not a cause of mesothelioma.[21]

17. If chrysotile fibers can cause mesothelioma at all, their potency is at least two orders of magnitude less than for amphiboles.[22] As explained by a Committee expert, who has testified to a 500-times potency difference,[23] "what that means is you may need 500 chrysotiles for every amphibole."[24]

18. Potency must be considered in any causal analysis. Factoring in potency, Garlock's chrysotile products played even a lesser role in causation than the already trivial role indicated by assuming equal potency. Even for claimants whose work would be expected to create the most contact with Garlock products, the contribution, if any, to cause of Garlock products is minute.[25]

19. Committee medical experts who testified at trial did not take into account a "qualitative or quantitative assessment of the portion of a person's exposure that is attributable to the product in question as compared with their total exposure to asbestos."[26]

II. History of Asbestos Litigation Against Garlock

3. Garlock successfully defended itself when courts and juries had access to complete evidence about plaintiffs' exposures to asbestos.[27] Garlock offered a bucket-in-the-

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"very famous" scientists, including physicians at the Mayo Clinic. Tr. 1902:8-11 (Brody). *See also* Tr. 977:13-978:22, 980:20-981:18, 993:9-994:20, 1001:5-20 (Weill).
[20] Tr. 977:8-978:22, 989:3-25 (Weill).
[21] Tr. 1008:23-1009:17 (Weill).
[22] Tr. 1001:5-1002:18 (Weill).
[23] Tr. 1906:3-5 (Brody).
[24] Tr. 1906:6-8 (Brody).
[25] Tr. 1012:2-25 (Weill).
[26] Tr. 2000:10-20 (Brodkin).

ocean defense, in which Garlock offered evidence that any exposure that plaintiffs experienced from Garlock's asbestos-containing gaskets and packing was trivial and did not contribute to plaintiffs' diseases when compared to plaintiffs' exposures to massive amounts of fibers released by asbestos-containing products, most notably amphibole asbestos insulation products, commonly used in the same workplaces as Garlock's products.[28]

4. To defend its products, Garlock therefore relied on evidence of plaintiffs' exposures to friable, amphibole insulation products and other highly friable asbestos products for which other companies were responsible. Garlock enjoyed a high level of success defending claims against it when Garlock not only showed the jury that Garlock's products were incapable of causing mesothelioma and other asbestos-related diseases, but also provided the jury evidence of what products did cause the disease.[29]

5. Before its major co-defendants filed for bankruptcy beginning in 2000 (the "Bankruptcy Wave"), Garlock paid small amounts to settle mesothelioma claims (on average $5,000) and was successful in mesothelioma cases tried to verdict against it (winning 92% of such cases).[30] Garlock's settlement payments before 2000 were driven by a desire to save the cost of paying lawyers and other costs to defend the claims, not by the risk of losing at trial.[31]

6. Beginning in 2000, the major defendants in asbestos litigation began to file for bankruptcy relief.[32] These were companies that paid the lion's share of settlements, many of which manufactured products such as friable asbestos insulation that they acknowledged were

[27] Tr. 1405:8-1409:13 (Magee).
[28] Tr. 2563:24-2564:5, 2564:15-18 (Magee).
[29] Tr. 2238:2-7, 2239:13-19 (Turlik); Tr. 4529:12-15, 4530:5-7 (Glaspy); Tr. 2563:24-2564:5, 2564:15-18, 2571:24-2572:3 (Magee); Tr. 3829:15-19 (Hanly); 1/14/13 Simon Dep. at 27:18-28:2, 40:24-41:3; Iola Dep. at 59:10-16.
[30] Tr. 1389: 18-1390:5, 1395:17-1396:13 (Magee).
[31] Tr. 1390:1-1391:7, 1391:11-1392:4, 1397:5-20 (Magee).
[32] Tr. 1404:4-23 (Magee).

dangerous.[33] These companies included Owens Corning (which produced Kaylo insulation), Pittsburgh Corning (which produced Unibestos), and W.R. Grace.[34] These filings precipitated numerous additional bankruptcies.[35]

7. Garlock had often been sued alongside these top tier companies before the Bankruptcy Wave because Garlock's gaskets and packing were used alongside of their insulation products.[36] After the Bankruptcy Wave, there was a substantial decrease by asbestos plaintiffs in the identification of evidence of exposures to those companies' products in cases against Garlock.[37] This phenomenon was widespread, particularly among firms that made the highest settlement demands against Garlock.[38] These firms used what Mr. Rick Magee (General Counsel to EnPro Industries, Inc., Garlock's ultimate parent, who was one of the key decision-makers in large settlements and trials for Garlock) called "driver cases" in order to increase Garlock's settlement average with their firm. Evidence of plaintiffs' exposures to friable products was particularly likely to be absent in these driver cases.[39]

8. Garlock's mesothelioma settlement average increased by seven times after the Bankruptcy Wave.[40] This increase happened for two reasons. First, the cost of defense increased because plaintiffs who used to readily acknowledge that they worked around asbestos insulation (such as Kaylo and Unibestos) suddenly were no longer identifying those companies.[41] This required Garlock to hire experts and spend money on investigation in order to obtain evidence of

[33] Tr. 1404:24-1405:2 (Magee).
[34] Tr. 1404:20-23 (Magee).
[35] Tr. 1405:3-7 (Magee).
[36] Tr. 1405:8-1406:3 (Magee).
[37] Tr. 2251:17:1-2252:2, 2252:12-13, 2252:17-21 (Turlik); 4533:24-4534:3 (Glaspy); 2571:13-19 (Magee).
[38] *See, e.g.*, Tr. 2252:14-25, 2257:21-2258:7 (Turlik).
[39] Tr. 1408:24-1409:2, 1410:18-21 (Magee).
[40] Tr. 2575:10-24 (Magee).
[41] Tr. 1406:22-1407:9 (Magee).

these exposures.[42] These expenses made it economically attractive to pay $70,000 to settle a case rather than the half million dollars or more it now cost to try a case.[43]

9. Garlock's efforts to develop this evidence also were not a complete substitute for plaintiffs' admissions of exposure, in terms of presenting a compelling case to the jury.[44] The absence of evidence thus also impacted the risk of an adverse outcome at trial, both the risk of probability of a plaintiff's verdict and the risk that Garlock's share of any such verdict would be larger.[45] Garlock still won most cases that went to verdict, but its success rate decreased.[46] By the end of the decade, however, its increased expenditures on defense had paid off, as Garlock won defense verdicts in 13 of 15 cases that went to trial in the five year period prior to its petition.[47] In the first of the two cases that Garlock lost, Garlock obtained evidence of the plaintiff's exposures to asbestos insulation products of bankrupt companies and the jury allocated almost all of the plaintiff's damages to bankrupt companies, and only 2% to Garlock.[48] The second case that Garlock lost is on appeal and was the subject of discovery in this bankruptcy case.[49] Still, the increased costs of defense meant it remained in Garlock's economic interest to pay larger settlements than it had paid in the 1990s, even though any expected judgments from the settled cases against Garlock are but a fraction of Garlock's settlement payments.[50]

10. Garlock expected that once its former co-defendants emerged from bankruptcy and established Trusts to pay claims against them, plaintiffs would once again identify their exposures to the products of such companies, decreasing Garlock's litigation costs, trial risk, and

[42] Tr. 1407:13-18 (Magee).
[43] Tr. 2586:7-2587:25 (Magee).
[44] Tr. 2308:20-25, 2309:2-24 (Turlik); 4580:23-4581:3, 4581:25-4582:8 (Glaspy).
[45] Tr. 2573:20-2574:7 (Magee).
[46] Tr. 2572:4-23 (Magee).
[47] Tr. 2584:14-23 (Magee).
[48] Tr. 2585:13-22 (Magee).
[49] Tr. 2585:23-2586:3 (Magee).
[50] Tr. 2586:7-2587:25 (Magee).

therefore settlements.[51] Garlock's trial risk did decrease in cases where it was able to obtain claims plaintiffs had submitted to Trusts.[52]

11. But Garlock was frustrated in obtaining evidence of plaintiffs' Trust claims. The leading plaintiffs' firms constituted the official asbestos committees in the chapter 11 cases and the plans of reorganization including the Trust Distribution Procedures (TDP) were written almost exclusively by these lawyers.[53] The TDP made exposure evidence Garlock expected to come back into the system confidential and very difficult for defendants to obtain.[54] In particular, Trusts had procedures that made the exposure evidence confidential and provided that exposure evidence was for the "sole benefit" of the Trust and not co-defendants in the tort system such as Garlock.[55]

12. Prominent plaintiff law firms also followed practices aimed at depriving Garlock of this evidence. Rule 30(b)(6) designees for several prominent law firms—one of which serves on the Official Committee of Asbestos Personal Injury Claimants in this case, and another of which served as co-counsel to a firm on the Committee—admitted that they delay filing Trust claims to deny defendants such as Garlock the benefit of that information at trial.[56]

13. Debtors also obtained discovery in this bankruptcy case with respect to Trust claims and ballots filed by fifteen plaintiffs with resolved claims (the "Designated Plaintiff" cases).[57] These cases all demonstrated substantial numbers of exposures to bankrupt companies' products that were not disclosed to Garlock in tort litigation.[58] On average, plaintiffs omitted exposures to nearly 19 companies' products, including more than 13 (13.5) exposures to

[51] Tr. 2576:15-2577:23 (Magee).
[52] Tr. 2580:14-25 (Magee).
[53] Tr. 1169:20-1170:3 (Brickman).
[54] Tr. 1170:12-24 (Brickman).
[55] Tr. 2582:10-18 (Magee).
[56] Kraus Dep. at 41:5-42:14; Shein Dep. at 43:24-25, 44:4-9, 44:12-16; Cooper Dep. at 45:4-5, 7-13.
[57] Tr. 2596:24-2597:3 (Magee).
[58] *Id.*

insulation companies' products. At the same time, on average they disclosed exposures to only two bankrupt companies' products.[59] Plaintiffs denied exposures (or knowledge of exposures) consistently in these cases, even though they filed claims against reorganized companies (or voted ballots as creditors) based on the same evidence.

14. The omitted evidence impacted the trials and settlements of these cases, many of which were "driver" cases, which were cases in which plaintiffs' firms targeted Garlock to leverage agreements for Garlock to increase the settlement amounts paid to all of such firms' clients who alleged exposure to Garlock's products.[60] Three of the law firms with cases among the fifteen (representing eleven of the fifteen cases) serve on the Committee.

15. The conduct uncovered by discovery was egregious. In one case that Garlock settled for $250,000, the plaintiff signed fourteen sworn statements attesting to "regular, frequent, and proximate" exposures to highly friable asbestos insulation and other products of bankrupt defendants.[61] Neither the plaintiff nor his law firm ever disclosed the products exposures in the tort case against Garlock, even though standard interrogatories required the plaintiff to disclose all of his known exposures and he was asked for that information at his depositions.[62] The law firm even elicited testimony at the plaintiff's deposition to the effect that he was never exposed to many of the very products to which he had sworn he suffered exposure in his 14 affidavits and therefore squarely contradicting the sworn statements.[63] The plaintiff ultimately filed twenty Trust claims and ballots based on undisclosed exposures.[64] Had this evidence been disclosed, it would have altered Garlock's defense of the case and lowered its

[59] *Id.*
[60] Tr. 3089:13-3090:13 (Magee).
[61] Tr. 2279:8-2287:5 (Turlik).
[62] *Id.*
[63] *Id.*
[64] *Id.*

costs.[65] The plaintiffs' lawyer in fact testified that the lawyers in his office who prepared 14 affidavits to support the plaintiffs' claims against bankruptcy trusts would not have shared that exposure information with lawyers pursuing claims for the plaintiff against "viable defendants" because their goal is to "maximize recoveries" for their clients.[66]

16. In another case, handled by a firm that serves on the Committee, the plaintiff began filing Trust claims based on undisclosed exposures the day after Garlock settled the case for $250,000 following eighteen days of trial. This occurred in a jurisdiction where local rules required plaintiffs to file and disclose Trust claims at least ninety days before trial.[67] The plaintiff ultimately filed 23 Trust claims, none of which were disclosed to Garlock, and eleven of which relied on exposure in jobs where the plaintiff had denied he was exposed to asbestos during the tort case. The vast majority of the claims were based on exposures to products that had not been disclosed in the tort case.[68] The firm that filed the Trust claims admitted that they were intentionally delayed until after trial in violation of the trial court's order.[69] If the evidence had been disclosed before trial, it would have reduced Garlock's risk and cost of defense.[70]

17. In a case pursued by a third firm that is also on the Committee, the plaintiff obtained the largest verdict against Garlock in its history (which Garlock settled for $9 million). Garlock pursued its bucket-in-the-ocean defense. A key issue in the case was whether the plaintiff had been exposed to Unibestos insulation, a highly friable, amphibole-containing product manufactured by Pittsburgh Corning. Plaintiff's trial counsel represented to the jury that plaintiff had not been exposed: "There is not a single piece of evidence that puts Unibestos

[65] *Id.*
[66] Shein Dep. 64:22-65:16.
[67] Tr. 2307:1-4 (Turlik).
[68] Tr. 2313:17-2314:19 (Turlik).
[69] Cooper Dep. 75:9-17.
[70] Tr. 2315:1-6 (Turlik).

aboard the boat."[71] But seven months before trial, the law firm had cast a ballot in the Pittsburgh Corning bankruptcy case certifying under penalty of perjury that the plaintiff had in fact been exposed to Unibestos.[72] In addition, after the trial, the law firm filed fourteen Trust claims and cast nine ballots based on exposure evidence not disclosed in the tort case, some arising from jobs where the plaintiff swore he was not exposed to asbestos at all. Many of the trusts were responsible for amosite insulation.[73] The evidence not disclosed would have affected Garlock's defense of the case and potentially the outcome at trial.[74] It also would have changed Garlock's settlement history, as this was the "driver case of all driver cases," which influenced scores of high-dollar settlements for years.[75]

18. Another one of the fifteen Designated Plaintiff cases, which was brought by a fourth law firm, was the only significant mesothelioma verdict against Garlock between 2006 and its bankruptcy petition in 2010 that has not yet been reversed on appeal. In response to Texas standard interrogatories that he amended seven times before trial, the plaintiff identified no bankrupt products, including in response to the specific Texas question requiring plaintiffs to identify all of their exposures to companies in bankruptcy.[76] He also did not identify any Trust claims in response to the standard Texas interrogatory asking about any Trust claim that "was or will be made," and did not produce any Trust claim forms in response to the standard request for production requiring production of such claim forms, claiming the question was "not applicable"

[71] 10/6/04 Treggett Trial Tr. at 5177, 5184-86 (GST-5440).
[72] Treggett 2004 PCC Ballot at GST-EST-0555991 (GST-54455); Kraus Dep. at 92-93.
[73] Treggett Lummus Trust Claim at Waters 02350 (GST-5478); Treggett AWI Trust Claim at Waters 02423 (GST-5480); Treggett Combustion Trust Claim at Waters 2520 (GST-5483); Treggett FB Trust Claim at Waters 02561 (GST-5485); Treggett OC Trust Claim at Waters 02685 (GST-5489); Treggett Western Trust Claim at Waters 02826 (GST-5493).
[74] Tr. 4583:19-23, 4584:1-2, 4584:7-12 (Glaspy); 3077:15-3078:7 (Magee).
[75] Tr. 3090:8-13 (Magee).
[76] Plaintiffs' Seventh Supplemental Responses to Master Interrogatories, Requests for Production and Disclosures at 9-10, 13-14, 21-23 (Feb. 15, 2010) (GST-4926).

to him and that there were no Trust claims at that time.[77] In fact, the day before the plaintiff's deposition in which he denied knowledge of "Babcock & Wilcox," he filed a claim against the Babcock & Wilcox Trust, which was eventually paid.[78] This claim was never disclosed to Garlock, in violation of Texas discovery rules.[79] Nor were other Trust claims filed after trial disclosed to Garlock in the tort case. Two of the Trust claims represented that the plaintiff "handled raw asbestos fibers on a regular basis" and "fabricated asbestos-containing products such that [he] in the fabrication process was exposed on a regular basis to raw asbestos fibers," which was inconsistent with his deposition testimony and the record at the tort trial, where he claimed that the only asbestos products he ever handled were Garlock crocidolite gaskets.[80]

19. In a pool of 205 mesothelioma claims in which Debtors obtained discovery concerning a limited number of Trust claims and ballots, there was an average of 8.9 omissions per case, including 4.4 insulation omissions. Because these figures were based on records of Trust claims against only ten Trusts and some bankruptcy ballots, there could have been additional omissions. Seventy-two of those claims were resolved for more than $250,000, out of only 161 total resolutions above that amount in Garlock's history.[81] These practices likely extended to more of the 161 cases than just those 72, because this analysis considered only a sample of those cases.[82]

20. The practice of mesothelioma plaintiffs and plaintiff firms concealing or failing to disclose exposure evidence also occurred in cases where Garlock was not a defendant. Courts

[77] *Id*. at 13-14, 48-49.
[78] Torres B&W Trust Claim at WK0001-0009 (GST-4927).
[79] Chandler Depo. Tr. at 52:9-53:1 (GST-1020).
[80] Torres B&W Trust Claim at WK0006 (GST-4927); Torres OC Trust Claim at WK0092 (GST-4929).
[81] Tr. 3063:4-3064:4 (Magee).
[82] Tr. 3064:19-3065:2 (Magee).

have sanctioned plaintiffs for their failure to produce Trust claims, and have found that the evidence is material to defendants.[83]

21. The practice has inspired judicial and legislative action, as courts and legislatures have recognized the importance of evidence of plaintiffs' entire asbestos exposure profile to defendants such as Garlock, and the requirement of basic fairness that plaintiffs disclose it, by adopting case management orders and legislation imposing sanctions on plaintiffs who fail to disclose their Trust claims.[84]

22. The non-disclosure of exposure evidence underlying Trust claims and other documents was a significant problem for Garlock, affecting many of its most significant cases and increasing its trial risk and defense costs.

III. Relationship Between Garlock's Settlements and its Liability for Mesothelioma Claims

23. Garlock's past mesothelioma settlements are not a measure of the expected outcome of litigation against Garlock.

24. Law and Economics is a well-established discipline applying economics to legal issues.[85] It has studied for more than forty years the relationship between settlements and expected outcomes of trial, including seminal works by Richard A. Posner (now Judge Posner) and George L. Priest (professor at Yale Law School and an expert for the Debtors).[86]

25. Law and Economics recognizes that settlements and expected outcomes of litigation are not the same thing.[87] Settlements that defendants and plaintiffs are willing to agree

[83] Tr. 1189:10- 1193:13 (Brickman); *Montgomery v. Am. Steel & Wire* (Del. Sup. Ct. Castle County, Nov. 7, 2011) at 3-4 (GST-1148); *Barnes & Crisafi v. Ga. Pac.*, No. MID-L-5018-08 (AS) (N.J. Super. Ct. N.J. Middlesex County June 12, 2012) (GST-1150); *Brassfield v. Alcoa, Inc.* (Tex. Dist. Ct. Harris County Nov. 22, 2006) (GST-0660); *Stoeckler v. Am. Oil Co.* (Tex. Dist. Ct. Angelina County Jan. 28, 2004) (GST-0661); *Dunford v. Honeywell Corp.* (Va. Cir. Ct. Loudoun County Dec. 10, 2003).
[84] *See* Tr. 2305:2-18 (Turlik); Tr. 4538:24-4539:3 (Glaspy).
[85] Tr. 2735:15-2736:3 (Bates).
[86] Tr. 2736:4-22 (Bates).
[87] Tr. 2736:23-2737:20, 4755:20-4756:18 (Bates).

to are determined by both the parties' expectations about the litigation's outcome and the costs they avoid by settling instead of continuing to litigate (the "avoidable costs").[88]

26. In contingency fee litigation, the plaintiff's potential recovery from litigation, and his avoidable costs, are different from the defendant's potential loss from litigation and its avoidable costs. Whereas a defendant pays his lawyers by the hour, and pays the entire judgment if the plaintiff wins, the plaintiff does not pay for his lawyer's time, but instead pays the lawyer a percentage of the ultimate recovery—whether that recovery happens through settlement or litigation, and regardless of when recovery occurs and how much effort it requires the plaintiff's lawyers to expend.[89]

27. In the Law and Economics model, a settlement occurs when the defendant's maximum offer exceeds the plaintiff's minimum acceptable settlement.[90] The Law and Economics literature and game theory predict that, when both parties are represented by experienced professionals, a settlement will occur where the benefits from settling are shared equally.[91]

28. If instead the plaintiff's minimum acceptable settlement is greater than the defendant's maximum offer, a bargain is not possible and the case goes to trial.[92] The Law and Economics literature (including the article by Professor Priest) predicts that trials will occur when the plaintiff's view of the expected outcome of litigation exceeds the defendant's view of the expected outcome of the litigation by more than the mutual costs of litigating.[93] When that is the case, both parties will be better off going to trial than settling. In any civil litigation, this will

[88] *Id.*
[89] *Id.*
[90] Tr. 2744:15-2745:3 (Bates).
[91] *Id.*
[92] Tr. 2745:4-2747:1 (Bates).
[93] Tr. 2745:4-2747:1 (Bates).

occur in only a very small percentage of cases, and it will occur in a sample of cases that are neither random nor representative of all cases.[94]

29. Law and Economics therefore recognizes that settlements are not the same as expectations about the outcome of litigation. A plaintiff with no expected chance of winning might still recover a settlement by threatening to impose costs on a defendant if litigation continues.[95]

30. Before 2000, Garlock's mesothelioma settlements were dominated by a focus on avoidable costs, not the risk of litigation.[96] After the Bankruptcy Wave, Garlock's mesothelioma settlements continued to be dominated by costs, but as those costs increased, so did Garlock's settlements.[97] This increase in costs also increased Garlock's settlements because it was willing to pay more to avoid higher litigation costs.[98]

31. In a smaller number of cases after the Bankruptcy Wave, Garlock had increased trial risk, largely caused by the non-disclosure of material exposure evidence.[99] This non-disclosure of evidence increased the chance Garlock would lose and also increased the award against Garlock if it did lose, by decreasing the number of other parties assigned liability.[100]

32. Dr. Charles Bates was the only economist and econometrician among the expert witnesses who provided an estimate opinion in this case.[101] Dr. Bates was qualified by the Court as an expert in economics, econometrics, and asbestos claim estimation.[102]

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[94] Tr. 2738:16-2739:6 (Bates).
[95] Tr. 2739:17-2741:4 (Bates).
[96] Tr. 1394:3 (Magee).
[97] Tr. 1406:22-1407:9, 1407:11-18, 3088:11-3089:12 (Magee).
[98] Tr. 3088:11-3089:12 (Magee).
[99] Tr. 1394:10-14, 3088:25-3089:2 (Magee).
[100] Tr. 2573:20-2574:7 (Magee).
[101] *Compare* Tr. 2709:13-2710:24 (Bates) (PhD in economics); 2711:1-22 (specialty in mathematical modeling of economic systems and applying statistics and mathematics to such modeling); 2712:10-14 (four articles on econometrics published in peer-reviewed journals); 2702:10-13, 20-21 (founder of economic consulting firm) *with*

33. Dr. Bates established, using reliable econometric techniques, that Garlock's settlements exceeded the expected outcome of litigation against it by many times. Because of the contingency fee feature of asbestos litigation, defendants' avoidable costs are much higher than plaintiffs', especially given that the typical plaintiff sues over fifty defendants.[103] This gives plaintiffs the opportunity to obtain a settlement premium based on defendants' avoidable costs.

34. Dr. Bates verified his hypothesis by observing that actual trial outcomes—jury verdicts—vary strongly and reliably with the age of the plaintiff, with younger plaintiffs receiving approximately four percent per year more than older plaintiffs.[104] Avoidable costs, on the other hand, do not vary with the age of the plaintiff.[105] Thus, by examining how Garlock's settlements varied with the age of the plaintiff, Dr. Bates was able to determine the extent to which Garlock's settlements were driven by the expected outcome of litigation as opposed to the avoidable costs.[106] He determined that 95% of Garlock mesothelioma settlements were driven entirely by avoidable costs, as they did not demonstrate a detectable variance with age, while in five percent of cases, avoidable costs were still important, though exhibiting a small chance of plaintiff success.[107]

35. The test also showed that Garlock's settlements increased between the 1990s and 2000s: primarily because of an increase in avoidable costs, but also because of a small increase in trial risk in five percent of the cases.[108]

Tr. 4290:1-11 (Rabinovitz) (not an economist, econometrician, or statistician) *and* Tr. 4007:15-20, 4008:8-23 (Peterson) (same).
[102] Tr. 2734:14-23 (Bates).
[103] Tr. 2705:6-9, 2735:8-14, 2747:2-2748:21, 2751:8-2752:14 (Bates).
[104] Tr. 2763:23-2765:13 (Bates).
[105] *Id.*
[106] Tr. 2763:23-2765:13 (Bates).
[107] Tr. 2759:16-2763:20 (Bates); *see also* Tr. 2908:8-2909:17 (Bates) (explaining how determined $200,000 break point using both economic and statistical tests).
[108] Tr. 2758:19-2759:15 (Bates).

36. The Committee and FCR presented no evidence demonstrating that Garlock's settlements represented expected trial outcomes. Dr. Rabinovitz's opinion that asbestos litigation is an "industry," and Dr. Peterson's opinion that asbestos cases are largely settled in groups, both make it less likely that settlements reflect expectations about the outcomes of individual trials, not more likely. Dr. Peterson admitted that trial risk was not much of a factor in group settlements because they settled before that risk could be assessed.[109] Nor did Dr. Rabinovitz or Dr. Peterson present any data or analysis of such data to support their hypotheses.

37. To the contrary, Dr. Peterson admitted the validity of the basic elements of the Law and Economics model, admitting that avoidable costs are "why 99.9 percent of the cases settle, rather than going to trial," and recognizing that plaintiffs take into account a substantial risk of losing their case, as well as the number of parties that may be responsible.[110] Dr. Peterson's contention that the plaintiff attorney's costs should be included in the plaintiff's settlement decision is not credible, as it would require an assumption that plaintiff attorneys breach their fiduciary and ethical duties to their clients by putting their own interests above their clients'.

38. The Committee and FCR relied on estimates of future asbestos expenditures that Dr. Bates prepared for Garlock's ultimate parent EnPro Industries for financial reporting purposes. But as both Mr. Magee and Dr. Bates explained, these estimates were a projection of future settlements, not trial outcomes, and those settlements were dominated by cost avoidance concerns, not liability concerns.[111] Thus, they are neither useful nor relevant to estimation here.

39. The Committee and FCR also relied on documents and deposition testimony from Debtors' officers and employees stating that they considered trial risk when settling some cases

[109] Tr. 3983:24-3984:24, 4129:12-4130:2 (Peterson).
[110] Tr. 3981:18-3983:23, 3942:7-8, 3984:25-3985:5, 3985:13-16 (Peterson).
[111] Tr. 3044:9-17, 3054:16-3055:15 (Magee); Tr. 2776:3-2778:7, 2831:8-2832:13, 4755:20-4756:18 (Bates).

against Garlock. But these statements only showed that Debtors' officers and employees considered trial risk in some cases, as the Law and Economics model accounts for, not that the settlements were driven only by trial risk and not at all by avoidable costs in all cases.

40. Because Garlock's settlements were driven by avoidable costs, not trial risk, and because the trial risk in many cases was based on the non-disclosure of material exposure evidence, Garlock's mesothelioma settlements did not represent expected trial outcomes.

IV. Dr. Bates's Estimate of Garlock's Liability for Mesothelioma Claims

41. Dr. Bates used standard econometric techniques to place an upper bound on the expected outcomes of current and future mesothelioma claims against Garlock.

42. Dr. Bates assumed that (1) all individuals who allege direct or indirect contact with Garlock's asbestos-containing products proceed to trial and final judgment, (2) courts do not exclude plaintiff or defendant causation evidence, and (3) courts and juries have access to all information that individuals or their counsels have or can reasonably obtain regarding such individual's asbestos exposure.[112]

43. The first two assumptions are favorable to claimants, because they assume, consistent with the position of the Committee and FCR, that mesothelioma claimants who allege contact with Garlock's asbestos-containing products can obtain a trial, and are permitted to present their evidence on the issue of causation to juries. In practice, claimants who allege exposure to asbestos from Garlock's products are not always entitled to trials. *See, e.g.*, *Moeller v. Garlock Sealing Techs., LLC*, 660 F.3d 950, 954-55 (6th Cir. 2011) (holding that Garlock was entitled to judgment as a matter of law in case of career pipefitter who alleged regular work with Garlock's products).

[112] Tr. 2770:21-2772:3 (Bates).

44. The third assumption is nothing more than the criterion of a minimally fair system of justice: that courts and juries have access to all information that individuals or their counsels have or can reasonably obtain regarding such individual's asbestos exposure. The assumption mirrors the discovery obligations imposed by law.[113] Moreover, Dr. Bates did not interpret the third assumption to mean perfect or full information about the claimant's asbestos exposures, but rather only full information about exposures upon which the claimant bases claims against tort defendants and Trusts.[114]

45. Under these assumptions, Dr. Bates concluded that the judgments claimants would expect to obtain—their expected award from Garlock discounted by their likelihood of success—are less in the aggregate than $125 million (net present value at a three percent real discount rate).[115] He calculated that pending claimants would obtain less in the aggregate than $25 million and future claimants less than $100 million (net present value).[116]

46. To calculate these figures, Dr. Bates had to estimate the parameters relevant to expected outcomes, in particular, (1) the compensatory award an average claimant might obtain against all defendants (consisting of economic and non-economic damages), (2) Garlock's potential share of any such award (the total award minus co-defendant shares and Trust shares or offsets for Trust payments), (3) the likelihood the claimant would obtain that award, (4) the number of pending and future claimants alleging contact with a Garlock asbestos-containing

[113] *See, e.g.*, Cal. Civ. Proc. Code § 2017.010; Tex. R. Civ. P. 192.3; N.Y. C.P.L.R. 3101; Pa. R. C. P. No. 4001; *Regency Health Servs. v. Superior Court*, 64 Cal. App. 4th 1496, 1504 (Cal. App. 2d Dist. 1998) ("When responding to discovery, counsel generally has a duty to disclose information known to counsel . . ."); Tex. R. Civ. P. 193.1 ("[A] party must make a complete response, based on all information reasonably available to the responding party or its attorney at the time the response is made.").
[114] Tr. 2772:4-9, 2773:3-2773:13 (Bates).
[115] Tr. 2705:10-15, 2773:14-2774:3 (Bates).
[116] *Id.*

product (i.e., the population of claimants who could, per state law and assumption one, potentially obtain an award), and (5) the discount rate.[117]

47. In estimating these parameters, Dr. Bates applied the scientific disciplines of economics and econometrics in his work, including tests of statistical variability such as confidence intervals.[118] These included the statistical methods outlined by Prof. Heckman in his testimony, including the use of confidence intervals and other measures of variability.[119]

48. Dr. Bates relied upon a database assembled by Dr. Jorge Gallardo-Garcia.[120] The database incorporated all claimant-related discovery ordered by the Court in this case (including the Mesothelioma Claim Questionnaire ("PIQ"), Supplemental Settlement Payment Questionnaire, Supplemental Exposure Questionnaire, data from the Delaware Claims Processing Facility ("DCPF"), and ballots cast by asbestos claimants 23 bankruptcy cases certifying exposures to products for which the debtors in such cases are responsible), in addition to numerous other available sources of data.[121] The resulting database contains extensive information about mesothelioma claimants with resolved or pending claims against Garlock, including their

- Exposure to Garlock asbestos products;
- Job histories (industry, occupation, and work site);
- Exposures to non-Garlock asbestos-containing products;
- Claims against tort system defendants and status of those claims;
- Claims against Trusts and the status of those claims;
- Aggregate recoveries from tort defendants and Trusts, and

[117] Tr. 2778:22-2780:1, 2813:21-2815:14, 2774:17-2776:2 (Bates).
[118] Tr. 4756:19-4757:10, 4757:11-4758:5 (Bates).
[119] Tr. 4757:11-4758:5 (Bates); 4246:20-4249:1 (Heckman).
[120] Tr. 2780:11-21 (Bates).
[121] Tr. 2630:17-2631:2, 2634:25-2635:6 (Gallardo-Garcia).

- Ballots in Chapter 11 bankruptcy cases.[122]

49. Reviewers supervised by Dr. Gallardo-Garcia collected information from documents using objective methods and subject to rigorous quality control processes.[123] The resulting Garlock Analytical Database exceeds the standards of reliability required in economic research.[124]

A. Total Potential Compensatory Awards

50. Dr. Bates estimated total potential compensatory awards on the basis of hundreds of publicly reported mesothelioma verdicts.[125] Dr. Bates took account of the bias in those verdicts toward younger plaintiffs, in higher value states, with plaintiffs more likely to be alive, by applying a regression.[126] Based on the characteristics of each claimant, Dr. Bates calculated the estimated total potential verdict that each pending and future claimant could obtain.

51. Criticisms of Dr. Bates's calculation by Dr. Rabinovitz and Dr. Peterson were not credible. Dr. Rabinovitz criticized Dr. Bates for using non-Garlock verdicts. But the total potential compensatory award does not depend on the particular defendant, rather it depends on claimant characteristics such as age, life status, jurisdiction, and economic damages factors such as lifetime earnings.[127]

52. Dr. Peterson criticized Dr. Bates's regression, but failed to appreciate its purpose, which was to correct for the upward bias that exists in observed verdicts that are not a

[122] Tr. 2625:12-2626:23, 2629:2-2630:5 (Gallardo-Garcia).
[123] Tr. 2635:7-23, 2636:5-25, 2638:2-19, 2638:20-2639:5, 2641:3-11, 2644:17-22, 2639:6-2641:2, 2642:5-12, 2641:16-2642:4, 2642:13-20, 2642:21-2644:16, 2644:23-2645:20, 2644:23-2646:2, 2649:4-22, 2650:4-8 (Gallardo-Garcia).
[124] Tr. 2620:16-2621:1 (Gallardo-Garcia).
[125] Tr. 2627:7-2628:2 (Gallardo-Garcia).
[126] *Id*.
[127] Tr. 4807:14-23 (Bates).

representative sample of all cases.[128] Dr. Peterson also claimed to identify a seven percent annual increase in mesothelioma verdicts that Dr. Bates did not take into account, but Dr. Bates demonstrated that Dr. Peterson misinterpreted a one-time step up in verdict values between the late 1990s and early 2000s as a continuous increase that should be projected into the future.[129]

B. Garlock Share of Compensatory Award

53. To estimate Garlock's share of compensatory awards, Dr. Bates first classified states into several, joint-and-several, and hybrid jurisdictions on the basis of a legal memorandum provided to him by Robinson Bradshaw & Hinson, P.A.[130] Where a state had a threshold for joint and several liability (for example, the 50% threshold found in many states), Dr. Bates assumed Garlock did not meet it given the low-dose nature of Garlock's product and the large number of other parties that contributed to claimants' damages (as described below).[131]

54. Dr. Bates estimated the number of potentially responsible tort defendants and Trusts by estimating the number of direct, indirect, and bystander exposures identified by a sample of nearly 1,300 pending and resolved mesothelioma claimants.[132] This was a conservative step, because plaintiffs were likely exposed to more products than they are able to identify.[133]

55. Dr. Bates determined that this sample upon which the study was based was representative of the entire claim pool.[134] He then determined that the typical plaintiff alleges exposure to the products of 13 tort defendants (in addition to Garlock) and 22 Trusts (based on 18 filed Trust claims in PIQ responses and an average of 4 Trusts not yet established on the basis

[128] Tr. 4806:22-4807:13 (Bates).
[129] Tr. 4809:11-4811:15 (Bates).
[130] Tr. 2789:2-2790:24 (Bates).
[131] *Id.*
[132] Tr. 2795:20-2796:17 (Bates).
[133] Tr. 2793:12-20 (Bates).
[134] Tr. 2797:8-2798:14, 2854:2-2856:24 (Bates).

of ballots cast in those bankruptcy cases), for a total of approximately 36 parties that share the liability.[135]

56. Dr. Bates also calculated the recoveries that claimants would obtain from tort defendants and Trusts, for use in his joint and several calculation (as described below). This calculation was based on the Supplemental Settlement Payment Questionnaire sent to 1,000 randomly selected pending claimants, of which approximately 850 were returned.[136] Dr. Bates tested and verified the completeness of the data obtained from these questionnaires and estimated that typical claimants would receive tort recoveries ranging from $400,000 to $900,000 (on average $560,000) from eight or nine defendants, as well as approximately $600,000 from 22 Trusts, for a total of $1 million to $1.5 million.[137]

57. Dr. Bates used his estimates of the number of responsible parties and claimants' recoveries to estimate Garlock's share of any potential award. For several liability jurisdictions, he divided the total award equally, by 36. This was a conservative step given Garlock is a low-dose defendant and other defendants and Trusts are either comparable to Garlock, or manufactured insulation or other friable products that released far more asbestos into the air and would be expected to be assigned a higher share of responsibility than Garlock.[138] Indeed, Dr. Peterson admitted that "in the scheme of all of the asbestos-containing products, gaskets are not the central source of asbestos exposures; I think there's no question about that."[139]

[135] Tr. 2946:24-2947:11, 2950:5-2951:6 (Bates).
[136] Tr. 2799:7-2801:2 (Bates); 2650:9-2651:12 (Gallardo-Garcia).
[137] Tr. 2799:7-2802:13 (Bates).
[138] Tr. 2802:14-2803:19 (Bates).
[139] Tr. 4038:18-4039:20 (Peterson); *see also* Tr. 4036:1-21 (Peterson) (admitting Garlock was a minor producer of asbestos products and not a significant defendant); Tr. 4037:9-21 (Peterson) (admitting thermal insulation and gaskets are different kinds of products with different defenses); Tr. 4040:18-4041:20 (Peterson) (admitting that "there's a serious causation problem with regard to" gaskets).

58. In joint and several jurisdictions, Dr. Bates deducted Trust payments instead of counting Trusts as shares, to account for the possibility that Trusts are not fully funding their liability, in which case the solvent defendants would bear the shortfall.[140]

59. In hybrid states such as California and New York (where defendants have several liability for non-economic damages but joint and several liability for economic damages), Dr. Bates applied the several liability calculation to non-economic damages and the joint and several liability calculation to economic damages.[141] Dr. Bates calculated the split between economic and non-economic damages using a model of economic damages developed by Dr. Jeffrey Brown at Bates White, using standard economic methodologies used in wrongful death cases that base economic damages on lost wages, medical and funeral costs, benefits, and so on.[142]

60. Dr. Bates also performed calculations in which he assumed all jurisdictions had several liability and all jurisdictions had joint and several liability, which confirmed his ultimate estimate (described below) that litigation would yield less than $125 million in the aggregate for current and future claimants.[143]

61. Dr. Peterson's criticisms of Dr. Bates's calculation of Garlock's share were not credible. His opinion that the average number of responsible parties in a mesothelioma case against Garlock is not thirty-six, but two, was based only on verdicts that are not representative of the claims as a whole and where material evidence was not disclosed to Garlock.[144] Dr. Bates's analysis was based on a representative and reliable sample of 1,300 cases. Furthermore,

[140] Tr. 2803:20-2804:24 (Bates).
[141] Tr. 2805:10-2806:6 (Bates).
[142] Tr. 2782:3-2784:2 (Bates).
[143] Tr. 2803:20-2804:24, 2823:5-10 (Bates).
[144] Tr. 2738:16-2739:6, 4813:17-25 (Bates).

Dr. Peterson has himself testified that Garlock was a minor producer of asbestos products that did not make a significant product, and was not a significant defendant.[145]

62. Dr. Peterson has estimated liabilities for forty previous debtors, and in each case opined that the company was liable for large numbers of the same mesothelioma claimants involved in this case.[146] He admitted that many of these forty companies' products were used in the same occupations and industries where Garlock's products were used, and that "asbestos claimants tend to be exposed to lots of different companies' products."[147] In particular, "people that were exposed to Garlock were exposed to other products often."[148] He further admitted it is reasonable to expect that many other defendants, including Trusts, will be paying the same claims asserted against Garlock.[149] Given this, Dr. Bates's conclusion of thirty-six responsible parties including Garlock is reasonable and credible.

63. Dr. Peterson's criticism of how Dr. Bates performed his share calculation was not credible because it was based on a mistake about what Dr. Bates did.[150]

64. Dr. Rabinovitz discussed adjustments to Dr. Bates's parameters, including likelihood of success and number of responsible co-defendants and Trusts, and the effect such adjustments would have on his estimate if implemented.[151] Dr. Rabinovitz provided no justification for why those adjustments would be proper or even express an opinion that they would be proper, rendering them arbitrary and not credible.

65. Mr. Patton criticized Dr. Bates for assuming that a claimant who casts a ballot or files a Trust claim knows he was exposed to the product of the debtor.

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[145] Tr. 4036:1-21, 4038:18-4039:20 (Peterson).
[146] Tr. 4054:20-4058:20, 4073:18-4074:18 (Peterson).
[147] Tr. 4062:21-4063:1 (Peterson).
[148] Tr. 4073:18-4074:18 (Peterson).
[149] Tr. 4064:24-4065:13 (Peterson).
[150] Tr. 4817:20-4820:15 (Bates).
[151] Tr. 4220:24-4222:9 (Rabinovitz).

66. Dr. Bates's conclusion that a claimant who files a Trust claim is alleging exposure to the Trust's product is reasonable. Trusts commonly require the claimant to demonstrate meaningful and credible exposure to the debtor's products.[152] They also apply exposure criteria that are at least as stringent as the criteria historically applied by the debtor before its bankruptcy filing.[153]

67. Dr. Bates's conclusion that a claimant who casts a ballot is alleging exposure to the debtor's product is also reasonable. A claimant casting a ballot must have a good faith basis to believe he was exposed to the debtor's product.[154] Persons who vote are identifying themselves as creditors in the case.[155] In previous bankruptcy cases, both debtor's counsel and the court stated that voting claimants had to certify they had meaningful and credible exposure to the debtor's products.[156]

C. Likelihood of Plaintiff Success

68. Dr. Bates derived his estimate of plaintiffs' likelihood of success from Garlock's mesothelioma verdict history. He hypothesized that the approximately 8% likelihood of success that plaintiffs had in the 1990s best characterized plaintiffs' likelihood of success against Garlock in an environment where the jury has access to all information known or reasonably known to the plaintiff or his counsel.[157]

69. Dr. Bates then tested his 8% hypothesis against the settlement data in order to determine that it was a conservative estimate of plaintiffs' likelihood of success.[158] Using the same Law and Economics model described above, Dr. Bates estimated the likelihood of success

[152] Tr. 3726:19-3729:13 (Patton).
[153] Tr. 3730:12-3731:5, 3731:20-3732:4, 3732:8-3733:5 (Patton); *see also* Tr. 4065:14-4066:12 (Peterson).
[154] Tr. 3693:6-9, 3697:8-11, 3759:12-19, 3774:11-12 (Patton).
[155] Tr. 3764:20-3766:3 (Patton).
[156] Tr. 3770:24-3773:17, 3776:24-3777:17 (Patton).
[157] Tr. 2810:16-2811:2 (Bates).
[158] Tr. 2811:3-2813:5 (Bates).

implied by each mesothelioma settlement Garlock entered into in the 2000s.[159] He populated the model with claimant characteristics (such as age), settlement amounts, estimated expected compensatory award amounts (based on estimated total potential verdict and estimated Garlock share), and estimated avoidable costs, and solved for expected likelihood of success.[160] Dr. Bates found that, in the 2000s, the expected liability likelihood for the top 4% of cases was 17%, and for the other 96% of cases, was nil, resulting in an average liability likelihood of less than 1%.[161] This confirmed that Dr. Bates's use of an 8% average liability likelihood derived from verdict data was highly conservative and appropriate.

70. Dr. Peterson's criticism of Dr. Bates's estimate of likelihood of success was not credible. Dr. Peterson admitted it is extremely difficult for plaintiffs to prove causation against a gasket manufacturer.[162] Neither Dr. Peterson nor Dr. Rabinovitz provided any evidence to rebut Dr. Bates's statistical test of his liability likelihood estimate.

D. Pending Claims Estimate

71. Dr. Bates estimated the number of pending claims where claimants alleged contact (direct, indirect, or bystander) with a Garlock asbestos-containing product by counting the number of claimants who returned a PIQ response in this case describing how they came into contact with a Garlock product.[163] These are the claimants who could (per Dr. Bates's first assumption) obtain a trial and potentially impose liability on Garlock. This study demonstrated that approximately 1,755 of the approximately 4,000 pending claimants did not allege contact

[159] *Id.*
[160] *Id.*
[161] *Id.*
[162] Tr. 4040:18-4041:20 (Peterson).
[163] Tr. 2813:21-2815:14 (Bates).

with Garlock products—a precondition to proceeding to trial and final judgment.[164] Dr. Bates thus reasonably assigned a value of zero to those claims.[165]

72. For the remaining approximately 2,200 pending claims where the claimant does allege contact with a Garlock asbestos-containing product, Dr. Bates applied his estimated potential compensatory award and likelihood of success parameters.[166] For each such pending claimant, he used such claimant's characteristics (such as age and jurisdiction) to estimate the total potential verdict, then calculated Garlock's potential share of the verdict and applied the 8% likelihood of success average.[167] Performing this calculation, Dr. Bates ultimately concluded that pending claimants could expect to obtain judgments in an aggregate amount less than $25 million.[168]

73. Dr. Rabinovitz's criticism of Dr. Bates for concluding that pending claimants who did not allege exposure to Garlock asbestos-containing products in response to the PIQ could not obtain a trial was not credible. Dr. Bates determined it would not be plausible to assume that non-responses were missing at random, and thus treated persons who did not submit a PIQ alleging contact as not having a basis to do so.[169] In any event, he tested the sensitivity of this assumption, and determined that if he did treat non-responses as missing at random, it would increase his calculation by 5 or 6 percent, and would not change his ultimate opinion that expected aggregate judgments are less than $125 million.[170]

E. Future Claims Estimate

[164] Tr. 2816:12-2817:14, 2927:14-2928:12 (Bates).
[165] *Id.*
[166] Tr. 2813:21-2815:14 (Bates).
[167] *Id.*
[168] Tr. 2823:5-10 (Bates).
[169] *Id.*
[170] *Id.*

74. To estimate future claims, Dr. Bates used the Bates White incidence model to determine the total number of future individuals who will allege contact with Garlock asbestos-containing products.[171]

75. Dr. Bates used the incidence model to calculate the portion of the future total incidence of mesothelioma in the United States that will arise from each of the five contact groups identified by Mr. Henshaw, which gave him the total number of persons diagnosed with mesothelioma who could have been in contact with gaskets.[172]

76. Then, because Garlock was only one of many gasket manufacturers, Dr. Bates estimated the portion of those individuals in each contact group who will allege contact with Garlock gaskets by using the percentage of pending claimants who alleged contact with Garlock gaskets through the Mesothelioma Claim Questionnaire.[173] This was a conservative step because pending claimants who sued Garlock are more likely to have had Garlock contact than average future individuals diagnosed with mesothelioma.[174] This calculation resulted in Dr. Bates estimating that over half of the future incidence who worked in the Henshaw occupations and industries will assert contact with Garlock asbestos-containing products.[175] Dr. Bates's estimate did not reduce his future claims estimate to account for the fact that not all future individuals with Garlock contact will sue Garlock, another conservative step.[176]

77. After identifying the number of future individuals who can allege contact with Garlock products, Dr. Bates valued these individuals' claims in the same way he valued pending claims, using his estimates of potential compensatory awards, Garlock's share of such awards,

[171] Tr. 2815:15-2816:11 (Bates).
[172] *Id.*
[173] Tr. 2819:24-2821:13, 2852:14-2854:1 (Bates).
[174] *Id.*
[175] Tr. 2821:16-2822:3 (Bates).
[176] *Id.*

and claimants' likelihood of success.[177] He then discounted to present value using the Congressional Budget Office's (CBO's) estimates for long-term inflation and risk free interest rates, which are commonly used in the asbestos estimation context as well as in the context of other long term forecasts.[178] Dr. Bates determined that the judgments future claimants could expect to obtain are less than $100 million in the aggregate (net present value).[179]

78. Dr. Rabinovitz and Dr. Peterson's criticisms of Dr. Bates's incidence model were not credible, and were based on misunderstandings of what incidence models measure and how they are constructed.

79. The criticisms of Dr. Bates's discount rate lodged by Mr. Radecki and Mr. McGraw were not credible. Dr. Bates used a risk-free rate and inflation rate derived from a CBO forecast, which resulted in a real risk-free rate comparable to the real risk-free rate in the CBO report upon which Mr. Radecki relied for his inflation rate.[180] Moreover, that is the same source that Dr. Rabinovitz has relied upon in numerous previous engagements, and comparable to the real risk-free rate Dr. Peterson has applied in previous engagements.

F. Final Estimate

80. Thus, pending and future claimants in the aggregate could expect to obtain less than $125 million in judgments.

81. Dr. Bates used reliable econometric techniques to derive his estimate, and the estimate was based on sufficient facts and data. It was also based on conservative assumptions, including that:

[177] Tr. 2823:11-20 (Bates).
[178] Tr. 2774:17-2776:2, 4786:11-4787:6 (Bates).
[179] Tr. 2823:11-20 (Bates).
[180] Tr. 1359:7-1360:15, 1370:16-1372:2, 1372:8-1372:16, 1373:2-7 (Radecki).

- Claimants have an 8% likelihood of success, when Dr. Bates's economic test demonstrates the actual figure is much less;
- All cases where a claimant alleges contact with Garlock asbestos-containing products would go to trial;
- At such trials, claimants' causation evidence would not be excluded;
- Liability would be assigned only to those companies where claimants identified exposure through discovery in this case—not the number of asbestos exposures that claimants actually likely experienced (in the hundreds or thousands);
- Each of the 36 companies so identified would be assigned an equal liability share, despite the admission by experts for the Committee that insulation and other friable products included in that 36 produce exposures several orders of magnitude higher;
- An extremely high percentage of future mesothelioma incidence will allege exposure to Garlock products—more than half of the mesothelioma diagnoses arising from Mr. Henshaw's contact groups—despite the fact that Garlock was one of many companies that manufactured asbestos-containing gaskets; and
- All future individuals diagnosed with mesothelioma who had contact with Garlock gaskets will assert a claim.

82. Drs. Rabinovitz and Peterson, by contrast, did not estimate any of the parameters relevant to expected outcomes of litigation. None of their additional criticisms of Dr. Bates's estimate are credible.

83. Thus, $125 million is a reasonable estimate of the aggregate allowed amount of current and future mesothelioma claims against the Debtors.

V. Costs of Resolving Mesothelioma Claims

84. It is not yet clear how pending and future mesothelioma claims will be resolved—whether through Garlock's Plan or that anticipated by the Committee and FCR; through litigation, settlement, or a 524(g) Trust; or through some as yet unanticipated process.

85. The cost of resolving claims would depend on how the claims are resolved. Litigation would be costly, while a Trust could resolve claims much more cheaply than Garlock could have resolved claims in the tort system.[181] Neither Dr. Rabinovitz nor Dr. Peterson projected anything other than the cost of resolving claims in the tort system.

86. The undisputed evidence showed that the cost of resolving mesothelioma claims under Debtors' plan would be less than $270 million. Expenditures under the plan would be lower than expenditures in the tort system because claimants would be required to disclose what they or their counsel know about their exposures, thus decreasing transaction costs and decreasing settlements.[182] Settlements under the plan would also give all claimants a significant premium over what they would receive if their claims were allowed.[183] Thus, all claimants would be expected to opt for settlement over litigation.[184] Approximately $56 million would be available for unforeseen contingencies and Trust administration.[185]

VI. Projections of Tort System Costs by Drs. Rabinovitz and Peterson

87. As discussed in the conclusions of law, tort system costs are not the proper object of this proceeding. But in any event, Drs. Rabinovitz and Peterson did not supply a credible or

[181] 10/22/03 Tr. at 144-51, *In re Babcock & Wilcox* (Peterson) (GST-7324) (opining that "the liability under the trust distribution procedure is well under half of what the liability would have been if Babcock & Wilcox had continued in the tort system," saving over $6 billion); Mark A. Peterson, Preliminary Expert Report on W.R. Grace Trust (March 2009) at 1 (GST-6572) ("Using the TDP of the proposed reorganization plan, the Trust's liabilities were lower than its liability would be in tort litigation. The TDP could save up to $1 billion in liabilities compared to litigation.").
[182] Tr. 2834:1-2835:20 (Bates).
[183] *Id.*
[184] Tr. 2846:2-2847:11 (Bates).
[185] *Id.*

reliable projection of what Garlock would have paid to resolve mesothelioma claims in the tort system.

88. Drs. Rabinovitz and Peterson regard the work they do as science.[186] The key expert judgment they made was to choose a "calibration period" to derive benchmarks for Garlock's future settlements.[187]

89. Neither provided any objective or scientific basis for choosing the calibration periods they did. Both assumed that the future would resemble the recent past. But they provided neither a qualitative nor quantitative analysis of what drove Garlock's settlements in the recent past, and thus no insight into what would have driven Garlock's settlements in the future. Their opinions thus rested only on their *ipse dixit*.

90. Dr. Rabinovitz offered no opinion about why Garlock's settlements varied enormously in the past.[188] She thus had no basis to offer an opinion about why Garlock's settlements would remain the same as the recent past in the future.

91. Most notably, Dr. Rabinovitz failed to take into account the impact that tens of billions of dollars in payments by Trusts would have had on Garlock's settlements, even though she opined in previous cases that such payments should exert downward pressure on tort defendants' settlements.[189] She opined that this pressure did not happen in Garlock's case, but did not investigate reasons why that might not yet have occurred, such as the possibility that Trusts beginning operations in the late 2000s were paying a backlog of claims Garlock had

[186] Tr. 4009:19-24 (Peterson); Tr. 4290:12-4291:4 (Rabinovitz).
[187] Tr. 4298:10-4299:11, 4300:5-13 (Rabinovitz).
[188] Tr. 4301:15-4304:1 (Rabinovitz).
[189] Tr. 4310:11-4311:10, 4312:17-4314:10 (Rabinovitz).

already settled, meaning the impact would not have been felt before the petition.[190] She did not study the DCPF data ordered in discovery by this Court that bears directly on this question.[191]

92. Dr. Peterson had numerous opinions about why Garlock's settlements varied over time, but he provided no objective bases for his opinions, other than his *ipse dixit*. He claimed that a dozen factors resulted in Garlock's settlements increasing, but provided no quantification, data, or statistical testing of any of his hypotheses concerning the alleged factors he named.[192] Thus, like Dr. Rabinovitz, he had no basis to assume that the factors that drove Garlock's settlements in the past would have continued to persist in the future.[193]

93. Also like Dr. Rabinovitz, Dr. Peterson hypothesized that any effect of the Trusts on Garlock's settlements had already been incorporated into Garlock's pre-petition settlements.[194] And like Dr. Rabinovitz, he did not analyze whether confidentiality and other provisions delayed the relief that Garlock would have otherwise received from Trusts.[195] Nor did he analyze the possibility that Trusts in the late 2000s were paying claims that Garlock had already settled (i.e., a backlog), such that one would not expect the impact to have occurred yet.[196] In prior testimony in this Court, Dr. Peterson testified that Trusts were paying a backlog of claims and any relief to Garlock would not have happened yet, making it important to analyze this question.[197]

94. Professor James Heckman, who received the Nobel Prize in Economics, opined that Drs. Rabinovitz and Peterson did not follow the scientific method or use generally

[190] Tr. 4317:10-4318:21 (Rabinovitz).
[191] Tr. 4319:18-4323:3 (Rabinovitz).
[192] Tr. 4046:8-15 (Peterson).
[193] Tr. 4081:12-15 (Peterson).
[194] Tr. 4077:21-4078:1 (Peterson).
[195] Tr. 4078:25-4079:5 (Peterson).
[196] Tr. 4077:21-4078:1 (Peterson).
[197] 10/15/10 Hearing at 415:7-419:7 (Peterson).

established econometric or statistical techniques.[198] Nor did they have an objectively verifiable basis for selecting their calibration periods.[199] Thus, Drs. Rabinovitz and Peterson's forecasts are no more reliable than a projection of stock or home prices based on recent history.[200] Nor did Drs. Rabinovitz or Peterson perform basic tests of the statistical variability of their forecasts that are an essential part of the scientific method.[201]

95. Dr. Bates, by contrast, did determine why Garlock's past settlements varied in the past, providing a basis to predict how Garlock's settlements would have varied in the future if it had remained in the tort system. Dr. Bates proved—using the standard Law and Economics model and his statistical age decrease test—that Garlock's settlements increased from the 1990s to the 2000s because of a massive increase in defense costs and a small increase in trial risk.[202] Dr. Bates also showed, using discovery obtained from DCPF in this case, that Garlock settled claims where a Trust claim had been filed more cheaply than claims where a Trust claim had not been filed, and also that more and more claimants are filing Trust claims earlier. Thus, there is reason to expect that Garlock's settlements would have decreased over time had it remained in the tort system, as Trusts began to pay out the tens of billions of dollars with which they were funded.[203]

96. Drs. Rabinovitz and Peterson's calibration periods also perpetuate the non-disclosure of evidence that occurred before the petition. When the settlement averages of law firms implicated in those practices is adjusted to equal the settlement averages of the other law

[198] Tr. 4233:24-4235:1 (Heckman).
[199] Tr. 4236:14-4238:10, 4241:22-4242:19 (Heckman).
[200] *Id.*
[201] Tr. 4245:23-4246:19, 4246:20-4249:10 (Heckman).
[202] Tr. 2756:19-2763:7, 2763:23-2770:10 (Bates).
[203] Tr. 4795:11-4796:22, 4799:13-4800:3 (Bates).

firms, projected settlements in the tort system are between $400 million and $500 million, less than half of Dr. Rabinovitz and Peterson's estimates.[204]

97. Even if their calibration periods had been correct, Drs. Rabinovitz and Peterson made other errors in applying their methods to the facts of this case.

98. Approximately $320 million of Dr. Rabinovitz's estimate consists of payments she projects Garlock would have made to defense lawyers to defend claims in the tort system.[205] Those amounts are not properly included, as defense lawyers and experts do not have claims for fees they would have earned if Garlock had not filed for bankruptcy. Nor are these fees a proxy for Trust administrative costs, as Dr. Rabinovitz admitted.[206]

99. Dr. Rabinovitz did not dispute that she made a $10 million error in her treatment of settlements that are contested by the Debtors.[207]

100. Dr. Peterson arbitrarily increased claimants' propensity to sue Garlock for 4.5 years after his calibration period, increasing his forecast by $130 million. Dr. Peterson provided no reason why Garlock would be sued in increasing numbers of cases. This increase did not have any basis, and should not have been applied.

101. Drs. Rabinovitz and Peterson also made basic data errors that resulted in overestimates of $80 million in the case of Dr. Rabinovitz and $190 million in the case of Dr. Peterson.[208] They failed to consider PIQ responses stating that claimants' claims had been dismissed, or that claimants did not have mesothelioma, which inflated both their pending claim estimates and their settlement rates.[209] They also had average settlement amounts that were too

[204] Tr. 4802:10-4803:5 (Bates); *see also* 4793:12-4794:25 (Bates).
[205] Tr. 4761:6-12 (Bates).
[206] Tr. 4294:7-4296:10 (Rabinovitz).
[207] Tr. 4188:23-4190:22, 4200:16-4201:2 (Rabinovitz).
[208] Tr. 4779:4-8 (Bates); Bates Rebuttal Demonstrative Slides at 5 (GST-8026).
[209] Tr. 4771:1-14 (Bates); Tr. 4690:14-25 (Gallardo-Garcia).

high because they placed three verdicts in 2010, the year Garlock obtained contribution as a result of those verdicts, instead of several years earlier when the verdicts were rendered.[210]

102. Drs. Rabinovitz and Peterson also applied inflated average settlement amounts to pending claims, because they did not take account of the fact that pending claims come from lower-settlement jurisdictions than resolved claims, and they did not take account of the fact that pending claims had been pending as of the petition date longer than resolved claims, which means they would have been settled for less.[211] Drs. Rabinovitz and Peterson also incorrectly assumed that all pending claims would have been resolved soon after the petition, contrary to Garlock's history in the tort system.[212] These errors resulted in both their forecasts being too high by $120 million.

103. Drs. Rabinovitz and Peterson also applied real risk-free rates that were too low because the sources they relied on for their nominal risk-free rates and inflation rates were inconsistent.[213] When a reasonable risk-free rate derived from the Congressional Budget Office is used, Dr. Rabinovitz's forecast decreases by $140 million and Dr. Peterson's forecast by $150 million.

104. Finally, Drs. Rabinovitz and Peterson failed to take into account the trend of plaintiffs filing their Trust claims sooner, which would have resulted in lower settlements had Garlock remained in the tort system. Taking this into account reduces their estimates to approximately $300 million.[214]

Conclusions of Law

[210] Tr. 4691:23-4693:1, 4693:12-20 (Gallardo-Garcia); Gallardo-Garcia Rebuttal Demonstrative Slides at 15 (GST-8025); Tr. 4774:14-4775:20 (Bates).
[211] Tr. 4779:9-4781:6, 4782:9-4783:16, 4784:20-4786:9 (Bates).
[212] Tr. 4782:9-4784:19 (Bates).
[213] Amended Rebuttal Report of Karl N. Snow, PhD at 22-23 (GST-7239).
[214] Tr. 4801:7-4802:9 (Bates).

105. The purpose of estimation is to predict what claimants would receive if the pending and future mesothelioma claims against Debtors were allowed. "While estimation may be a somewhat abbreviated form of liquidation, they are still generally duplicative processes." *In re Dow Corning Corp.*, 211 B.R. 545, 566 (Bankr. E.D. Mich. 1997). *See also id.* at 560 n.13; *In re Farley, Inc.*, 146 B.R. 748, 753 (Bankr. N.D. Ill. 1992); *In re Ralph Lauren Womenswear*, 197 B.R. 771, 775 (Bankr. S.D.N.Y. 1996) (holding that "[t]he estimated value of a claim is . . . the amount of the claim diminished by [the] probability that it may be sustainable only in part or not at all").

106. By forecasting what claimants would receive if their claims were allowed, estimation permits formulation and confirmation of a plan of reorganization that will obviate the need for allowance proceedings. *See A.H. Robins Co. v. Piccinin*, 788 F.2d 994, 1012 (4th Cir. 1986) ("If the bankruptcy court could arrive at a fair estimation of the value of all the claims and submit a fair plan of reorganization based on such estimation, with some mechanism for dispute resolution and acceptable to all interested parties, great benefit to all the claimants could be achieved and the excessive expense of innumerable trials, stretching over an interminable time, could be avoided.").

107. The Committee has failed to meet its burden of proving that likely claimants have viable claims against Debtors.

108. The Committee has failed to prove that likely claimants' cumulative lifetime asbestos exposures from Garlock's products contributed more than a "bucket of water into the ocean" to causing typical claimants' mesothelioma. *Moeller v. Garlock Sealing Techs., LLC*, 660 F.3d 950, 955 (6th Cir. 2011).

109. To find likely claimants have viable claims would require the Court to "indulge in a fiction that each and every exposure to asbestos, no matter how minimal in relation to other exposures, implicates a fact issue concerning substantial-factor causation in every 'direct-evidence' case."). *Betz v. Pneumo Abex, LLC*, 44 A.3d 27, 56-57 (Pa. 2012). *See also Howard v. A.W. Chesterton Co.*, 2013 Pa. LEXIS 2199 (Pa. Sept. 26, 2013) (plaintiffs conceded that under Pennsylvania law after *Betz* "[t]he test for adequacy is the comparison of the particular product exposure(s) to the totality of the person's asbestos exposures.").

110. Dr. Bates provided an estimate of what claimants would receive if claims were allowed, under the conservative assumption that claimants would be able to obtain a trial and introduce their causation evidence. His estimate was reasonable, reliable, rested on conservative assumptions, relied on sufficient facts and data, and was derived by using a valid scientific methodology. It was both credible and admissible under Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). Thus, the Court estimates that the aggregate allowed amount of pending mesothelioma claims is $25 million, and that the aggregate allowed amount of future mesothelioma claims is $100 million (present value), for a total of $125 million present value.

111. It is premature to project what it will cost to resolve pending and future mesothelioma claims, because the means for resolving the claims have not been determined. Claims could ultimately be resolved through Garlock's plan or that anticipated by the ACC and FCR; through litigation, settlement, or a 524(g) Trust; or through some as yet unanticipated process. Each of these methods could carry a different cost, and it is therefore neither necessary nor possible to predict the cost of the means that ultimately will be selected. The purpose of this estimate is instead to provide a forecast that will permit negotiation and formulation of a plan for

resolving mesothelioma claims in a manner consistent with the Bankruptcy Code and other applicable law. *A.H. Robins Co.*, 788 F.2d at 1012.

112. Nevertheless, in the alternative, the Court concludes that the cost of resolving mesothelioma claims under Debtors' plan would be $270 million. Dr. Bates's estimate of that cost is reasonable and reliable, is based on sufficient facts and data, and rests on conservative assumptions.

113. A projection of what it would cost Debtors to resolve mesothelioma claims in the tort system is neither necessary nor proper. Debtors would resolve claims in the tort system only if these chapter 11 cases were dismissed, in which case a projection of such costs would not be necessary. The cases cited by the Committee and FCR from Delaware are not binding on this Court, and are factually distinct because the debtors in those cases did not dispute their liability for claims, unlike Garlock. Finally, as the evidence at trial showed, as a factual matter, settlements in the tort system are not a proxy for either allowed claims or the cost of resolving claims in this bankruptcy case.

114. Nevertheless, in the alternative, the projections by Drs. Rabinovitz and Peterson of Garlock's cost of resolving claims in the tort system are neither credible nor admissible under *Daubert*. Under Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993), expert testimony is not admissible in federal court unless (a) the testimony is connected to the matters at issue before the Court, (b) the expert has applied reliable methods, and (c) the expert has reliably applied those methods to the facts of the case. The proponent of expert testimony has the burden of establishing its admissibility by a preponderance of the evidence. *Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194, 194 (4th Cir. 2001).

115. The Supreme Court has described the first requirement of Rule 702 as "fit"—that is, whether the expert's testimony is "sufficiently tied to the facts of the case." *Daubert*, 509 U.S. at 59. Stated differently, Rule 702 requires "a valid scientific connection to the pertinent inquiry as a precondition to admissibility." *Id.* at 591-92. Expert opinion that is not connected to the relevant questions at issue must be excluded. *See, e.g.*, *Sherman v. Westinghouse Savannah River Co.*, 263 Fed. App'x 357, 362 (4th Cir. 2008) (affirming trial court's exclusion of expert testimony where there was "no fit whatsoever between his analysis and the limited issue in this case"); *United States v. Scholl*, 166 F.3d 964, 970-72 (9th Cir. 1999) (same); *ePlus, Inc. v. Lawson Software, Inc*., 764 F. Supp. 2d 807, 812-16 (E.D. Va. 2011), *aff'd*, 700 F.3d 509 (Fed. Cir. 2012).

116. Drs. Rabinovitz and Peterson's opinions do not satisfy the "fit" requirement because they only purport to project what it would cost Garlock to resolve claims (primarily through settlement) in the tort system, which is not a question before the Court. Nor is that question relevant to any question before the Court.

117. In addition, expert testimony to be admissible must be "the product of reliable principles and methods." Federal Rule of Evidence 702. This means expert testimony must be based on a reliable methodology, not the *ipse dixit* (or say-so) of the testifying expert. *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997). Expert testimony based on unreliable methodology, speculation, or mere belief must be excluded. *See Bryte ex rel. Bryte v. Am. Household, Inc.*, 429 F.3d 469, 477 (4th Cir. 2005); *Oglesby v. Gen. Motors Corp.*, 190 F.3d 244, 250 (4th Cir. 1999). In particular, " 'Scientific' knowledge is generated through the scientific method—subjecting testable hypotheses to the crucible of experiment in an effort to disprove them. An opinion that

defies testing, however defensible or deeply held, is not scientific." *United States v. Bynum*, 3 F.3d 769, 773 (4th Cir. 1993).

118. Drs. Rabinovitz and Peterson's work did not meet these standards. Their forecasts were based on the selection of a calibration period justified only by their unexamined assumption that the future will resemble the recent past, an opinion no more valid than a projection of stock or home prices based on recent performance. Nor did Drs. Rabinovitz and Peterson quantify the variability of the parameters in their forecasts.

119. Even if Drs. Rabinovitz and Peterson met the minimum reliability standards applicable under Rule 702 and *Daubert*, for the same reasons, their projections are not credible (nor are they relevant).

120. Finally, experts in federal court must reliably apply their "principles and methods to the facts of the case." Fed. R. Evid. 702(d). Thus, as part of its gatekeeping function, the Court must assess whether Drs. Rabinovitz and Peterson's methodology "properly can be applied to the facts in issue." *Daubert*, 509 U.S. at 592-93. Courts in the Fourth Circuit routinely exclude expert testimony when the expert fails to reliably apply his or her methods to the facts of the case. *See, e.g.*, *Oglesby*, 190 F.3d at 249–51 (affirming trial court's exclusion of expert testimony because "it depended on an imperfect syllogism constructed from unsupported suppositions"); *Snoznik v. Jeld-Wen, Inc.*, No. 1:09CV42, 2010 WL 1924483, at *12 (W.D.N.C. May 12, 2010) (excluding expert testimony regarding allegedly defective window, in part, because of flaws in expert's testing and methodology).

121. Drs. Rabinovitz and Peterson did not reliably apply their methodology to the facts of this case. As described in the findings of fact, they ignored available data, made errors in interpreting the data, and arbitrarily increased their forecasts, resulting in projections that were

many times too high, even accepting the viability of their methods. For this reason too, their opinions are not admissible. Even if their opinions met the minimum standards of admissibility, they are not credible, for the same reason.

122. For the foregoing reasons, the Court estimates that the aggregate allowed amount of pending mesothelioma claims is $25 million, and that the aggregate allowed amount of future mesothelioma claims is $100 million (present value), for a total of $125 million present value.

Additional Findings of Fact on *Daubert* Issues

Findings Related to Committee Medical Experts

General Findings

1. Chrysotile differs in chemical formula, crystal structure, and electrical charge from the amphibole fibers of the minerals amosite, crocidolite, and tremolite.[215] The curly chrysotile fibers break down in the body and are removed rapidly, whereas the spear-like amphiboles persist for years, a concept known as biopersistence.[216]

2. The consensus of the medical community, even according to a Committee expert, is that chrysotile-induced mesothelioma only occurs with very high exposures such as occur in "mining situations."[217] Even in these settings, studies of persons exposed in mines without amphibole contaminants did not demonstrate increased mesothelioma risk.[218]

[215] Tr. 416:11-419:15 (Sporn).
[216] Tr. 419:16-421:24, 423:21-424:7 (Sporn); Tr. 1886:17-20 (Brody).
[217] Tr. 1901:3-1902:7 (Brody) (admitting that in his deposition he agreed that was the consensus. (Debtors' Motion to Exclude or Strike Committee Medical Expert Witness Opinions filed 7/3/13 [Hereafter "Motion"], Appendix C, Brody Dep. at 149:12-150:4; Motion, Appendix D, Sporn Rebuttal References, Churg (2005)). The consensus that chrysotile-induced mesothelioma only occurs with very high exposure was published in a textbook authored by "very famous" scientists, including physicians at the Mayo Clinic. Tr. 1902:8-11 (Brody). See also, Tr. 977:13-978:22, 980:20-981:18, 993:9-994:20, 1001:5-20 (Weill).
[218] Tr. 977:8-978:22, 989:3-25 (Weill).

3. On the issue of whether chrysotile fibers cause mesothelioma,epidemiology is essential to causation determination; it is the "acid test' for causation.[219]

4. Proper methodology requires assessing cumulative lifetime exposure and determining whether that exposure is associated with statistically significant increased incidence of disease in well-conducted epidemiology studies.[220] A statistically significant association requires a risk ratio greater than one with a confidence interval that does not include one.[221] Moreover, a proper study must account for issues such as confounding.[222]

5. In addition, the Bradford Hill factors or a similar method must be employed to assess whether the association is truly causative.[223] As explained in the Federal Judicial Center Reference Manual on Scientific Evidence and by the witnesses at trial, the Bradford Hill criteria cannot be used in the absence of a series of studies demonstrating a statistically significant association.[224]

6. Numerous case-control studies of vehicle mechanics, who often are users of asbestos brakes and gaskets, but not asbestos insulation, show no statistically significant increased risk of mesothelioma.[225]

7. Many well-studied, heavily chrysotile-exposed populations exhibit no statistically increased risk of mesothelioma disease.[226]

8. Committee medical experts improperly rely on case reports, which are valuable for generating hypotheses, but cannot form the basis for establishing causation because they do not test the causal hypothesis.[227]

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[219] Tr. 1894:17-23 (Brody); Tr. 1951:5-1954:9 (Brodkin).
[220] Tr. 1872:14-18 (Brody); Tr. 274:1-281:3 (Garabrant).
[221] Tr. 282:10-283:8 (Garabrant).
[222] Tr. 274:23-275:24, 307:22-308:10 (Garabrant).
[223] Motion, Appendix B, Garabrant Rebuttal Report at 13-14.
[224] Motion, Appendix B, Garabrant Rebuttal Report at 13.
[225] Tr. 245:2-249:13 (Garabrant).
[226] Tr. 983:11-993:1 (Weill).

9. Committee medical experts improperly rely on animal studies, which are not directly analogous to human experience. They can raise hypotheses, but cannot be extrapolated to establish causation in humans.[228]

10. As explained by Dr. Anderson and other witnesses, public health literature is not a proper scientific foundation to establish causation. It is analysis that errs on the side of over protection by employing preventive assumptions such as a dose response model that postulates theoretical risk for exposures about which data is unavailable.[229] Nevertheless, Committee medical experts rely on these materials and employ "no safe level" theories.

11. Regulatory materials from EPA, OSHA, and other organizations upon which Committee medical experts rely use risk assessments based primarily on exposures of hundreds of fiber years.[230]

12. The need for epidemiological studies establishing statistically significant increased risk of disease—rather than mere case reports—is illustrated by research on cigarettes as a cause of mesothelioma. Although the toxin reaches the tissue where disease arise and case reports exist indicating cigarette smoking causes mesothelioma, it is not a cause because epidemiology fails to demonstrate a statistically significant increased risk.[231]

13. The Committee medical experts presented no proper epidemiology studies establishing a statistically significant increased risk of mesothelioma from low-dose chrysotile end products.

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[227] Tr. 270:24-272:8, 299:6-300:19 (Garabrant).
[228] Tr. 981:25-982:6 (Weill).
[229] Tr. 4384:7-4386:15, 4389:5-4390:10 (Anderson); Tr. 2016:23-2017:10 (Brodkin).
[230] Tr. 2019:16-2020:10 (Brodkin).
[231] Tr. 284:1-286:3 (Garabrant); Tr. 2014:18-2015:2 (Brodkin).

14. The Committee experts' epidemiology studies related to high-exposure settings such as mines and factories in which confounding issues arose**,** or they were studies of mixed exposures that a Committee medical expert agreed could not distinguish fiber type response.[232]

15. Dr. Brodkin agrees it would not be scientifically valid to make conclusions about the levels of exposure from typical workplace activities with gaskets based primarily on "worst case scenario" data yet Committee medical experts rely primarily on such information.[233]

16. Committee medical experts improperly claim French and German population studies by Iwatsubo 1998, Rolland 2006, and Rodelsperger 2001 are informative on low-dose chrysotile exposure. Dr. Brodkin admits these are not chrysotile product studies and cannot be used to distinguish fiber type response.[234] Moreover, he admitted that the published case-controlled studies from some of the same authors studying the same basic populations failed to find statistically significant increased risk among workers who likely used low-dose chrysotile products such as brakes and gaskets.[235]

Additional Findings Specific to Dr. Brodkin

17. Committee medical expert Dr. Brodkin's methodology is to consider any "well-characterized exposure" as a substantial cause, even if it is as brief as ten minutes.[236] Accordingly, Dr. Brodkin believes any exposure is a cause, without regard to its role in cumulative exposure. He states, "I don't have a way of teasing [the importance of a minimal exposure] out from the other aspects of the aggregate exposure."[237]

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[232] Tr. 2039:2-2041:16 (Brodkin).
[233] Tr. 2015:3-10 (Brodkin).
[234] Tr. 2039:2-2041:16 (Brodkin).
[235] Tr. 2041:24-2043:1 (Brodkin). See also Tr. 305:12-308:3 (Garabrant) (discussing Rolland 2010, Woitowitz 1994, and Rodelsperger 1994).
[236] Tr. 2007:10-19 (Brodkin).
[237] Tr. 2006:12-23 (Brodkin).

18. Consistent with considering virtually any exposure a substantial cause, Dr. Brodkin did not review or consider any information gathered in this case concerning the exposures of likely claimants.[238]

19. In his methodology, Dr. Brodkin is comfortable with the approach of including only studies that suggest an association, rather than a comprehensive review that cites both negative and positive authority.[239]

20. Dr. Brodkin relies upon medical literature that employs the "public health perspective" or "protective principle" aimed at prevention of illness where the methodology purposely errs on the side of overprotection and includes a safety factor.[240]

21. Dr. Brodkin agreed that Dr. Anderson is correct that the Helsinki statement from 1997, upon which Dr. Brodkin relies, is a document written from the public health perspective.[241]

22. Dr. Brodkin admits the Bradford Hill criteria cannot be scientifically applied without a series of case control or cohort studies that demonstrate a statistically significant association.[242] Nevertheless, he employs the criteria without such studies.

23. Dr. Brodkin admits it is not scientifically reliable to reach conclusions about data different than the conclusions expressed by the authors who reported the data in peer-reviewed literature.[243]

[238] Tr. 2003:15-22 (Brodkin).
[239] Tr. 2035:1-9 (Brodkin).
[240] Tr. 2016:23-2017:21(Brodkin).
[241] Tr. 2016:3-15 (Brodkin).
[242] Tr. 2026:3-2027:6 (Brodkin).
[243] Tr. 2029:8-13 (Brodkin).

24. Dr. Brodkin explains the absence of chrysotile-related mesothelioma in South Africa as related to lack of significant chrysotile mining. Yet the authors reporting the lack of cases also report substantial long-term mining and reject that explanation.[244]

25. Dr. Brodkin engages in selective and misleading citation of medical literature, as for example when he relies on an Egyptian article (Madkour 2009). The authors report that chrysotile is *currently* used, which says nothing about historical use. In fact, the historical use of crocidolite is likely, as documented in a study (Gaafar 2007) that Dr. Brodkin did not cite in his report, his trial slides, or his direct testimony.[245]

26. Dr. Brodkin acknowledges that the data points to amphiboles being "much more" potent than chrysotile in causing mesothelioma.[246]Nevertheless, his analysis effectively treats chrysotile as similarly potent to amosite. [247]

27. The studies on low-dose exposure that Dr. Brodkin finds most informative are the French studies by Iwatsubo in 1998 and Rolland in 2006, and the German study by Rodelsperger in 2001. Yet he admits these studies are not specific to low-dose chrysotile products and are not informative on the dose-response relationship for chrysotile.[248]

28. Dr. Brodkin agrees that other studies by some of the same researchers who produced the Iwatsubo, Rolland, and Rodelsperger studies report the French and German populations studied exhibit no statistically significant increase in mesothelioma risk from exposure to low-dose chrysotile products.[249]

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[244] Tr. 2029:14-2031:23 (Brodkin).
[245] Tr. 2037:1-2039:1 (Brodkin).
[246]Tr. 2031:24-2032:4 (Brodkin).
[247]Tr. 1987:25-1988:9 (Brodkin) (describing the potency difference as not "clinically important"); Tr. 2041:1-8 (Brodkin) ("I don't spend much time distinguishing between the fiber types because they do have a very similar biological property.").
[248]Tr. 2039:8-2041:23 (Brodkin).
[249]Tr. 2041:12-2042:17 (Brodkin).

29. Dr. Brodkin acknowledges that Debtors' experts have correctly reported the results of many case-controlled studies that document an absence of statistically significant increased risk of mesothelioma among vehicle mechanics, yet rejects the importance of that literature. [250]

30. Dr. Brodkin's position on vehicle mechanics relies on registry studies, which do not have full occupational histories, and which the authors themselves characterize as "most useful as a tool for generating hypotheses," not as establishing statistical significance.[251]

31. Dr. Brodkin cites Chinese studies (Wang 2001) using the two cases originally reported by Yano 2001. Confounding issues exist with this population as evidenced by the high levels of the amphibole tremolite found in an autopsy of a plant worker.[252] One case was unusual because of its brief latency, 13.8 years.[253] The Rule 104 record establishes that "asbestos related peritoneal mesothelioma requires especially heavy exposures to amphiboles and is not associated with chrysotile exposure."[254]

32. Dr. Brodkin is editor of a textbook that says that peritoneal mesothelioma is not caused by chrysotile exposure.[255] The text also describes chrysotile as only a possible, not an established cause of mesothelioma.[256]

33. Dr. Brodkin incorrectly claims Selikoff's book *Asbestos and Disease* "emphasize[s] the health hazards associated with the way asbestos [gaskets and packing] are used."[257] The book contains no statement emphasizing a danger in gasketing and packing use of

[250] Tr. 2041:24-2048:25 (Brodkin).
[251] Tr. 2049:5-2051:25 (Brodkin).
[252] Motion, Appendix B, Weill Report at 60 (discussing Yano 2009).
[253] Motion, Appendix B, Garabrant Report at 18.
[254] Motion, Appendix B, Weill Report at 14 (citing Churg 1998, at 351).
[255] Tr. 2058:18-2059:2 (Brodkin).
[256] Tr. 2059:3-9 (Brodkin); Motion, Appendix C, Brodkin Dep. at 209 ("Chrysotile is generally considered less potent for mesothelioma induction than certain amphiboles, but it still may be a cause.")
[257] Tr. 2063:21-2064:15 (Brodkin); Motion, Appendix A, Brodkin Rebuttal Report at 2.

any kind, including grinding or working with the products. To the contrary, the book employs the word "uses" in its only statement about gaskets and packing, and explicitly states they pose "no health hazard in forms used in shipyard applications."[258] If there had been a health hazard for grinding, Selikoff's statement would have been qualified to reflect that fact as was Selikoff's statement for the very next product it lists on the page in question.

34. The methodology of Dr. Brodkin is not based on reliable reasoning and methodology.

Additional Findings Specific to Dr. Welch

35. Dr. Welch admitted her methodology used a single case report as the "benchmark for determining that exposure is enough" to cause mesothelioma.[259]The case report in question is found among other cases in a table contained in Greenberg 1974, an article about the British Mesothelioma Register. The only information on that case's exposure which Dr. Welch relies upon for her benchmark is: "1 day" of "sawing up asbestos cement sheets to construct two sheds."[260] Dr. Welch admitted that the cement sheet in question probably contained amphiboles.[261]

36. Dr. Welch uses this case-report, having nothing to do with Garlock's products, as the basis to claim one day of exposure to gaskets is sufficient to cause mesothelioma.[262]

37. Dr. Welch admitted not having case-control or cohort studies showing a statistically increased risk of disease to support her low-dose opinions.[263]

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[258] Tr.2063:10-2064:20 (Brodkin); Motion, Exhibit D, Asbestos and Disease at 467 (1978)).
[259] Tr. 2185:3-8 (Welch).
[260] Tr. 2185:3-14 (Welch); Motion, Appendix D, Welch Report references, Greenberg 1974 at 96.
[261] Tr. 2185:9-14 (Welch).
[262] Tr. 2184:1-2185:8 (Welch); Motion, Appendix C, Welch Dep. at 75:12-76:12.
[263] She explained her "benchmark" testimony as follows:

38. Dr. Welch employed the "no safe level" public health risk assessment theory,[264] which As Dr. Anderson explained, public health documents employ precautionary assumptions and are not determining causation using the methods appropriate for courts.[265]

39. Contrary to principles set out in the Federal Judicial Center, Reference Manual on Scientific Evidence (3d. ed. 2011), Dr. Welch asserts that a series of studies demonstrating a statistically significant increased risk are not necessary before applying the Bradford Hill criteria.[266] She also erroneously claims that the Bradford Hill factor "strength of association" is not measured by the level of relative risk.[267]

40. Dr. Welch reaches conclusions that are directly contrary to the references she cites as her authorities, as when she claimed the Li study provided "support" for a dose response relationship.[268] The study actually states, "We did not find any support evidence of a dose-response relationship by a statistically significant positive correlation coefficient."[269]

Q. Okay. And so under your methodology the case report is your benchmark for determining that exposure is enough. Is that how you're using the case report?

A. Yes. Since we already know that the asbestos exposed to him can cause mesothelioma, we have a case reported from that short an exposure.

Q. And you agree that that one case -- the one case report you know of in the whole medical literature involves somebody sawing up an asbestos cement board in Great Britain. And you know in Great Britain, amphiboles were used to make that cement board; correct?

A. Probably. Yes.

Q. And the hypothesis that one day's exposure to asbestos, even amosite asbestos, causes mesothelioma has not been confirmed by case control or cohort studies that can establish that; correct?

A. Right. Tr. 2185:3-19 (Welch).

[264] Tr. 2122:2-17 (Welch).

[265] Tr. 4382:20-4384:15 (Anderson).

[266] Tr. 2199:7-16 (Welch). Her trial testimony disagreed that a "series" of studies was necessary, apparently conceding that at least one must exist. Yet in the Rule 104 Record, she admitted that for her purposes, not even one statistically significant study was necessary (Motion, Appendix C, Welch Dep. at 54:11-18 ("I don't know that I would say that [need for at least one study] as an absolute.")).

[267] Tr. 2199:17-2200:15 (Welch); Motion, Appendix C, Welch Dep. at 55:5-21, 57:12-23.

[268] Tr. 2200:18-2201:7 (Welch).

[269] Tr. 2201:2-7 (Welch); Motion, Appendix D, Weill Report references, Li, et al. 2004 at 446.

41. Dr. Welch cherry picks what she considers favorable studies even with later studies by the same author are opposed to her view. One illustrative example is Dr. Welch's reliance on a 1982 Langer case report on a brake worker, without discussion in her report or direct testimony about Dr. Langer's 2003 publication which concluded after two decades of additional research: "Brake installers and maintenance workers appear to exhibit no increased risk of mesothelioma."[270]

42. Similarly in past testimony Dr. Welch has testified selectively about the medical literature, justifying non-disclosure of information contrary to her theory, stating the lawyers failed to bring out that information with their questions.[271]

43. Dr. Welch's approach is advocacy rather than objective science.

44. The methodology of Dr. Welch is not based on reliable reasoning and methodology.

Additional Findings Related to Dr. Brody

45. Dr. Brody admits his chrysotile opinions rely on rodent studies in which rodents receive extremely high doses of chrysotile.[272] He agrees that these results are not representative of human asbestos exposure after removing and installing a gasket.[273]

46. Dr. Brody also relies on animal injection studies that bypass the body's defense mechanisms, using techniques that can produce mesothelioma with many substances that are not cause of mesothelioma in humans.[274]

[270] Motion, Appendix D, Weill Report references, Langer 2003 at 75; Tr. 2170:2-25 (Welch); Motion, Appendix B, Weill Report at 45.
[271] Tr. 2202:14-23; Motion, Appendix C, Welch Dep. at 114:23-116:2.
[272] Tr. 1873:2-23 (Brody).
[273] Tr. 1874:3-7 (Brody).
[274] Tr. 1877:2-1878:9 (Brody).

47. Dr. Brody interprets the results of animal experiments on chrysotile contrary to the interpretation placed upon them by his two teachers and mentors, Dr. Wagner and Dr. Craighead, both of whom are famous and respected researches in this field who believe that chrysotile fibers do not cause mesothelioma.[275]

48. The methodology of Dr. Brody is not based on reliable reasoning and methodology.

Daubert **Findings for Committee Industrial Hygiene Witnesses**

General Findings

49. The disease-causing potential of asbestos containing products is assessed using techniques developed by Certified Industrial Hygienists that measure fiber release in the breathing zone of persons working with or around the product in question.

50. Reliable measurement of fiber release must test actual work as it is done or employ workplace simulations that accurately reproduce the work as it is typically done.

51. Certified Industrial Hygienists have demonstrated competence in the skills necessary to properly design protocols for such studies.

52. To become a certified industrial hygienist requires demonstration of competence by testing, experience, and peer recommendation.

53. Committee Industrial Hygiene witnesses rely on a handwritten sample sheet they refer to as the "Shell sample." According to the document, the activity sampled "simulates worst case situation."[276] As the sample sheet indicates the grinder used by the worker was used to

[275] Tr. 1898:11-1901:2 (Brody).
[276] Tr. 1784:17-21 (Templin).

remove the entire gasket; no scraper was used to remove the gasket first, as would have been done were they not simulating the "worst case situation."[277] These are not typical work practices.

54. Committee Industrial Hygiene witnesses rely on a 1995 article by Dr. Millette. It reports a four-minute sample, which when calculated as a 30-minute time weighted average, as scientific industrial hygiene requires, that sample is actually below the OSHA short term exposure limit.[278]

Findings Specific to Dr. Longo

55. Dr. Longo testified to exposure assessments of gaskets by his company MAS, LLC. In his experiments asbestos fiber release from gaskets was created in an enclosure in Dr. Longo's laboratory.

56. Dr. Longo's studies were done for litigation and were funded by payments from firms in the asbestos litigation.

57. Typically exposure assessments are performed under protocols designed by industrial hygienist who have studied the activity as it is performed in the real world.

58. Dr. Longo has a Ph.D. in material science. He is not an industrial hygienist.

59. Dr. Longo did not testify to any training or experience in exposure assessment, nor did he testify to conducting exposures assessments outside the context of litigation.

60. Dr. Longo did not purport to comply strictly with the standards governing the experiments he conducted; rather he claimed only "general accordance."

61. Dr. Longo designed the protocols for each of the MAS gasket studies.[279]Before conducting the experiments, he had never installed or used asbestos gaskets or packing in the

[277] Tr. 1784:22-1785:18 (Templin).
[278] Tr. 1787:19-1789:17 (Templin).
[279] Tr. 1552:10-12 (Longo).

workplace, he had never seen asbestos gaskets or packing used in the workplace, and he had never conducted air monitoring during work with any asbestos product.[280]

62. In none of his flange gasket studies could Dr. Longo say that the gaskets removed from the flanges were actually Garlock gaskets.[281]

63. The flanges and fittings used in Dr. Longo's flange gasket studies had been out of service for many years. Dr. Longo conceded that the gaskets removed in Gasket Studies II and III, which were published, and Gasket Studies IV and V could have been in place for 20 years or more and out of service for at least six or seven.[282] The flanges used in the Crane Valve study were harvested in 2010 from the USS Lexington, which was decommissioned in 1991.

64. The rubber binder in gaskets can degrade over time.[283]

65. There is no evidence that typical claimants would remove gaskets that had been out of service as long as the gaskets in the MAS studies.

66. The MAS studies do not simulate real world work practices.

67. Many facts establish the unreliability of the MAS studies including but not limited to the fact that highest sample Dr. Longo had ever obtained as of the date of his Gasket Study V was a measurement taken during a rest period while no work occurred.[284]

68. Another example appears in the only published report on Dr. Longo's experiments. The average of the background samples in the paper's third study is reported to be above the current OSHA permissible exposure limit before the study began. This indicates that the chamber was contaminated before the gasket work was done.[285]

[280] Tr. 1551:25-1552:9 (Longo).
[281] Tr. 1552:19-1553:1 (Longo).
[282] Tr. 1570:15-1574:1 (Longo).
[283] Van Orden Rebuttal Report (GST-15177), at 3.
[284] Tr. 1582:13-1584:23 (Longo).
[285] Tr. 1592:11-1594:2 (Longo).

69. Criticisms of Dr. Longo's published study appeared in a peer-reviewed journal in 2002, discussing many problems with the studies. As was reported in that journal, Dr. Longo's employee and co-author has testified that the tests were later redone to fix quality control problems.

70. Expert testimony in this case established that Dr. Longo has repeatedly failed to follow the accepted methods and his own protocols.

71. Dr. Longo claims his Tyndall lighting displays demonstrate respirable fibers. Dr. Longo acknowledges that the maximum aerodynamic diameter of a respirable size particle is 3 microns.[286]

72. As demonstrated by Dr. Hesselink, and contrary to Dr. Longo's assertions, the light scattered from a single respirable asbestos particle cannot be detected by his camera.[287]

73. Dr. Hesselink also demonstrated that the asbestos fiber concentrations that Dr. Longo reported during his studies would still be far less than necessary to be recorded by Dr. Longo's video camera.[288]

74. Dr. Longo's Tyndall lighting displays thus do not demonstrate respirable fibers.

75. The methodology of Dr. Longo is not based on reliable reasoning and methodology.

Findings Specific to Mr. Templin

76. Mr. Templin is an employee of Dr. Longo's company MAS, LLC.[289]

77. Mr. Templin does not claim to have ever worked with asbestos gaskets or packing in any type of setting, be it industrial, naval, or shipyard.[290] Nor does he claim to have any

[286] Tr. 1440:13-30 (Hesselink).
[287] Tr. 4457:17-24 (Hesselink).
[288] Tr. 4459:11-13 (Hesselink).
[289] Tr. 1731:14-16 (Templin).

industrial hygiene experience monitoring others for potential exposures to asbestos from work with gaskets or packing.[291]

78. In fact, he admits he has never before seen asbestos gaskets or packing used in any workplace setting.[292]

79. Even though he is a Certified Industrial Hygienist he has not been asked to participate in MAS's own gasket studies.[293]

80. Mr. Templin has never published original research in the peer-reviewed literature. His only publication of any kind being a letter to the editor attacking one of Mr. Boelter's studies, which he drafted and co-signed with other MAS employees, including Dr. Longo.[294]

81. Mr. Templin did not attempt to review any of the depositions or other information about the current claimants produced in discovery in this case.[295] Thus, Mr. Templin conceded that he "can't offer any analysis of the current claimants' exposures from work or operations involving asbestos gaskets or packing."[296]

82. Mr. Templin did not conduct an independent, systematic review of the literature to determine which publications he would cite to the Court.[297] Rather, everything he relied upon and cited to the Court during his testimony was from what lawyers provided to him in 2002.[298] He has not updated that research.[299]

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[290] Tr. 1766:7-21 (Templin).
[291] Tr. 1766:22-1767:18 (Templin).
[292] Tr. 1766:7-11 (Templin).
[293] Tr. 1771:21-1772:5 (Templin).
[294] Tr. 1768:1-18 (Templin).
[295] Tr. 1769:8-20 (Templin).
[296] Tr. 1769:21-24 (Templin).
[297] Tr. 1769:8-14 (Templin).
[298] Tr. 1769:25-1771:11 (Templin). Coincidentally, this is the same year that Mr. Templin joined MAS. Tr. 1771:12(Templin)
[299] Tr. 1769:25-1771:20 (Templin).

83. Mr. Templin has never used Tyndall lighting outside the courtroom.[300] He has done no research to support his Tyndall lighting opinions.[301]

84. An analytic gap exists in Mr. Templin's reasoning that seeing some particles scattering light means it must have been scattered from respirable asbestos. Tyndall lighting opinions do not account for the larger-than-respirable size particles that are in the air.

85. Dr. Longo's published paper is one of the references Mr. Templin selected for citation in this case, despite his awareness that Dr. Longo's colleague Mr. Hatfield's sworn testimony that MAS had to redo the studies reported in the published paper to fix quality control problems.[302]

86. Mr. Templin justifies performing studies merely "in general accordance" with required protocols rather that assuring to "cross every t and dot every i."[303]

87. Mr. Templin employs unreliable methods and unreliable data.

Additional Conclusions of Law on *Daubert* Issues

88. The admissibility of expert testimony is governed by the Federal Rule of Evidence 702 and federal case law following *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). *Seaboard Lumber Co. v. United States*, 308 F.3d 1283, 1301-02 (Fed. Cir. 2002). (Federal Rules and *Daubert*apply to all federal civil proceedings, including bench trials and jury trials.)

89. The Garlock product chrysotile opinions of the Committee medical experts Drs. Brodkin, Welch, and Brody [referred to collectively as "Committee medical experts"] are not

[300] Tr. 1772:6-12, 1775:10-1776:2 (Templin)
[301] Tr. 1773:13-1774:13 (Templin).
[302] Tr. 1790:4-18 (Templin).
[303] Tr. 1790:25-1792:10 (Templin).

scientifically reliable under the under the standards of Rule 702 and *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

90. The Garlock product opinions of Committee experts Dr. Longo and Mr. Templin are not scientifically reliable under the under the standards of Rule 702 and *Daubert.*

91. The Committee medical experts have not employed analytic methods that pass muster under *Daubert* because there are analytic gaps between the foundations for their opinions and the conclusion they reach.

92. The Committee industrial hygiene experts have not employed analytic methods that pass muster under *Daubert* because there are analytic gaps between the foundations for their opinions and the conclusion they reach.

93. The testimony on causation by Committee medical experts should be excluded because the Committee medical witnesses' methodology fails to consider the other likely exposures of persons who will make claims against Garlock. *Moeller v. Garlock Sealing Techs., LLC*, 660 F.3d 950, 955 (6th Cir. 2011) (burden on the plaintiff to present expert testimony that exposure from product in question was more than a "bucket of water into the ocean.")

94. The testimony on causation by the Committee medical experts should be excluded because "[g]enerally, courts exclude experts who fail to consider alternative causes or fail to offer an explanation for why the proffered alternative cause was not the sole cause." *Dellinger v. Pfizer, Inc.*, 2006 U.S. Dist. LEXIS 96355, 32-33 (W.D.N.C. July 19, 2006) (citing *Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194, 202 (4th Cir. 2001).*See alsoEvans v. Medtronic, Inc.*, 2005 U.S. Dist. LEXIS 38405, 27-29 (W.D. Va. Dec. 27, 2005) ("When the expert's testimony relates to causation . . . courts have often held that the failure of the expert to address alternative causes constitutes an adequate ground on which to exclude the expert testimony.")

95. The testimony on causation by the Committee medical experts should be excluded because it is not based on a comparison of likely claimants' Garlock exposure and the totality of likely claimants' probable exposure to other sources of asbestos. *See, e.g., Betz v. Pneumo Abex, LLC*, 44 A.3d 27, 56-57 (Pa. 2012), ("[W]e do not believe that it is a viable solution to indulge in a fiction that each and every exposure to asbestos, no matter how minimal in relation to other exposures, implicates a fact issue concerning substantial-factor causation in every 'direct-evidence' case."); *Howard v. A.W. Chesterton Co.*, 2013 Pa. LEXIS 2199 (Pa. Sept. 26, 2013) (plaintiffs conceded that under Pennsylvania law after *Betz* "[t]he test for adequacy is the comparison of the particular product exposure(s) to the totality of the person's asbestos exposures.").

96. At most, the testimony on causation by the Committee medical experts related to general theoretical risk from Garlock's products rather than from specific exposures of likely claimants or categories of likely claimants, and thus are not helpful to the Court in evaluating the number of meritorious likely claims that may arise against Garlock. *Wannall v. Honeywell Int'l, Inc.*, 2013 U.S. Dist. LEXIS 68523, 45 (D.D.C. May 14, 2013) ("Dr. Markowitz believes that, as a matter of epidemiology and at a population level, asbestos in brake dust is a cause of mesothelioma. That is not the same as opining that a *particular* exposure to asbestos-containing brake dust was sufficient to cause a *particular* case of mesothelioma.").

97. Dr. Welch Dr. Brodkin's theory that considers all "well documented" Garlock exposures a substantial cause of mesothelioma (such as the theoretical ten minutes to which he would attribute causation) fails the test of scientific reliability. *Howard v. A.W. Chesterton Co.*, 2013 Pa. LEXIS 2199 (Pa. Sept. 26, 2013) ("The theory that each and every exposure, no matter how small, is substantially causative of disease may not be relied upon as a basis to establish

substantial-factor causation for diseases that are dose-responsive. *Betz v. Pneumo Abex, LLC*, 44 A.3d 27, 55-58 (Pa. 2012). . . . As explained in detail in the unanimous decision in *Betz*, the any-exposure opinion is simply unsupportable both as a matter law and science.")

98. The testimony on causation by Committee medical experts about Garlock's chrysotile products is contrary to what is established by the record in this case as the "consensus of the medical community," which is "that chrysotile-induced mesothelioma only occurs with very high exposures" such as occur in "mining situations."[304] Accordingly, his opinions would not pass muster under the *Frye* "general acceptance" standard, even if it were applicable, or under that portion of the *Daubert* analysis that considers general acceptance.

99. The Committee medical experts have not employed analytic methods that pass muster under *Daubert v. Merrill Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) because there are analytic gaps between the foundations their opinions and the conclusion they reaches.

100. The Committee medical experts' "no-safe-level" and above-background theories are legally insupportable as a scientifically reliable opinion on causation as both are untethered from a scientific benchmark for the dose of the exposure to chrysotile products that suffices to cause mesothelioma. *Wannall v. Honeywell Int'l, Inc.*, 2013 U.S. Dist. LEXIS 68523, 50-53 (D.D.C. May 14, 2013) (rejecting assertion that an expert can base his opinion on the theory that "any exposure above what is in the background air" may be considered a cause of mesothelioma and explaining that an expert's "opinion about 'no safe level' addresses *risk*, not *cause*, and there is a significant distinction between those two concepts.")

101. The testimony on causation by the Committee medical experts impermissibly considers chrysotile similar in effect to the distinctly different minerals of the amphibole family.

[304] Tr. 1901:3-22 (Brody) (agreeing with a statement published by Mayo Clinic physicians and others in a standard pathology textbook.

Downs v. Perstorp Components, Inc., 126 F. Supp. 2d 1090, 1125, 1128 (E.D. Tenn. 1999) (citing 2 Saltzburg, Martin & Kapra, Federal Rules of Evidence Manual, 1229-37 (7th Ed. 1998)) (rejecting reasoning that "substances with similar chemical structures cause similar injuries . . . . "[T]his reasoning is not consistent with the scientific method because even minor changes in molecular structure can alter a substance's effect.")

102. The evidence establishes that chrysotile fibers, if they cause mesothelioma at all, are a much less potent cause than amphibole fibers. Accordingly, a legally impermissible analytic gap exists between Committee medical expert's conclusions about the dose of asbestos from chrysotile products sufficient to cause mesothelioma and their reliance for that opinion on dose information from studies of persons exposed to commercial amphibole products or mixed fiber type studies. For example, Dr. Brodkin and Dr. Welch's opinions about low-dose chrysotile exposure impermissibly rests upon French and German studies (Iwatsubo 1998, Rolland 2006, Rodelsperger 2001) that Dr. Brodkin admits are not specific to low-dose chrysotile products and are not informative on the dose-response relationship for chrysotile. (Brodkin Tr. 2039:10-2041:25).

103. Committee medical experts improperly rely on case reports and case series, which are appropriate for generating hypotheses, but not for proving any hypothesis is correct. *Dellinger v. Pfizer, Inc.*, 2006 U.S. Dist. LEXIS 96355, 29-31 (W.D.N.C. July 19, 2006). *See also, Norris v. Baxter HealthcareCorp.*, 397 F.3d 878, 885 (10th Cir. Colo. 2005) ("[reliance on cases series] is misplaced and demonstrates the unreliable nature of the testimony."); *Nelson v. Matrixx Initiatives, Inc.*, 2012 U.S. Dist. LEXIS 144102, 8-9 (N.D. Cal. Oct. 4, 2012) ("Dr. Davidson's case series, one of the Davidson studies Dr. Hwang relied on, is not admissible evidence of causation . . . .").

104. Committee medical experts improperly rely on public health materials, which "fail to test a causal hypothesis and therefore cannot support a causation opinion." *Dellinger v. Pfizer, Inc.*, 2006 U.S. Dist. LEXIS 96355, 29-31 (W.D.N.C. July 19, 2006). *See alsoIndus. Union Dept., AFL-CIO v. Am. Petroleum Inst*., 448 U.S. 607, 656 (1980) (public health agencies "use conservative assumptions in interpreting the data with respect to carcinogens, risking error on the side of overprotection rather than underprotection."); *Rider v. Sandoz Pharms. Corp.*, 295 F.3d 1194, 1201 (11th Cir 2002) (public health "analysis involves a much lower standard than that which is demanded by a court of law. A regulatory agency such as the FDA may choose to err on the side of caution. Courts, however, are required under the *Daubert* trilogy to engage in objective review of evidence to determine whether it has sufficient scientific basis to be considered reliable.").

105. Committee medical experts improperly rely on test tube and animal studies. *Rider v. Sandoz Pharms. Corp.*, 295 F.3d 1194, 1202 (11th Cir. Ga. 2002) (animal studies cannot be extrapolated to humans because "what happens in an animal would not necessarily happen in a human being"); *Wade-Greaux v. Whitehall Labs*, 874 F. Supp. 1441, 1483-84 (D.V.I. 1994), ("*In vivo* and *in vitro* animal test data are unreliable predictors of causation in humans.") *Dunn v. Sandoz Pharms. Corp.*, 275 F. Supp. 2d 672, 679 (M.D.N.C. 2003) (biological possibility is not proof of causation).

106. Committee medical experts' opinions are not scientifically reliable because they fail to meaningfully account for medical literature contrary to their views. For example Dr.Brodkin is "comfortable" with reliance on materials that cites only material supporting the author's views. *McEwen v. Balt. Wash. Med. Ctr. Inc.*, 404 Fed. Appx. 789, 791-792 (4th Cir. 2010) ("[T]he McEwens' experts failed to meaningfully account for medical literature at odds

with their testimony, declaring without explanation that the studies cited by BWMC did not apply to McEwen."). *See, e.g.*,*Barber v. United Airlines, Inc.*, 17 Fed. Appx. 433, 437 (7th Cir. Ind. 2001) ("Because in formulating his opinion Dr. Hynes cherry-picked the facts he considered to render an expert opinion, the district court correctly barred his testimony because such a selective use of facts fails to satisfy the scientific method and *Daubert*, and it thus fails to "assist the trier of fact.'").

107. Rather than reporting on the totality of the science, the approach of Committee medical experts is to impermissibly look only for the articles supporting an already formulated opinion. *Makor Issues & Rights, Ltd. v. Tellabs, Inc.*, 2010 U.S. Dist. LEXIS 62114 (N.D. Ill. June 23, 2010) (Witness "admitted that he was looking simply for articles to support his opinion — which included only negative articles about the industry."). *See also Claar v. Burlington Northern R. Co.*, 29 F.3d 499, 502-03 (9th Cir.1994) ("Coming to a firm conclusion first and then doing research to support it is the antithesis of [scientific method].")

108. Dr. Brodkin's alleged reliance on methodologies for making clinical care decisions in not a reliable basis for determining tort causation (*Federal Judicial Center, Reference Manual on Scientific Evidence*, 714 (3d. ed. 2011) ("Although physicians use epidemiological studies in their decision making, they are accustomed to using any reliable data to assess causality, no matter what their source because they must make care decisions even in the face of uncertainty. This is in contrast to the courts which require a higher standard than clinicians or regulators, and wherein causation cannot just be possible but where a preponderance of evidence establishes that an injury was caused by an alleged exposure.") (internal quotes omitted).

109. Dr. Brodkin's articulationof three independent "methods" of determining causation (Brodkin Tr. 1935:4-1936:8) are not scientifically reliable bases in the way he uses them. The first, merely taking an occupational history, is not a correlation of exposure to statistically significant increased risk. The second, citation to the Helsinki document, is merely reliance on discussion in a single document prepared in part from a public health perspective. And the third, Bradford Hill analysis, has not been employed by Dr. Brodkin appropriately for several reasons, among which are lack of case-control or cohort studies demonstrating statistically significant increased risk of exposures to low-dose chrysotile products. *SeeFrischhertz v. SmithKline Beecham Corp*., 2012 U.S. Dist. LEXIS 181507, 9-10 (E.D. La. Dec. 21, 2012): "The Bradford-Hill criteria can only be applied after a statistically significant association has been identified." Federal Judicial Center, Reference Manual on Scientific Evidence, 599, n.141 (3d. ed. 2011) ("In a number of cases, experts attempted to use these guidelines to support the existence of causation in the absence of any epidemiologic studies finding an association . . . . There may be some logic to that effort, but it does not reflect accepted epidemiologic methodology."). *See, e.g*., *Dunn v. Sandoz Pharms.*, 275 F. Supp. 2d 672, 678 (M.D.N.C. 2003)."

110. Dr. Longo's Tyndall lighting displays do not demonstrate respirable fibers and are not scientifically reliable.

111. The probative value of Dr. Longo's Tyndall lighting videos is substantially outweighed by the danger of unfair prejudice, confusion of the issues and misleading the fact finder. FRE 403.

This 1st day of November, 2013.

Respectfully submitted,

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